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PROTO AND EARLY HISTORY
OF
THE KARIMNAGAR REGION

Ph.D., Thesis

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Thesis

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PROTO AND EARLY HISTORY
OF
THE KARIMNAGAR REGION

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CERTIFICATE

THIS IS TO CERTIFY THAT THE THESIS
ENTITLED " PROTO AND EARLY HISTORY OF THE
KARIMNAGAR REGION", SUBMITTED BY SHRI V.V.
KRISHNA SASTRY FOR THE AWARD OF THE DEGREE
OF DOCTOR OF PHILOSOPHY IN ANCIENT INDIAN
HISTORY AND EPIGRAPHY, IS BASED ON ARCHAEOLO-
GICAL EXCAVATIONS AND EXPLORATIONS CARRIED OUT
BY HIM IN THE REGION OF KARIMNAGAR UNDER MY
SUPERVISION. THE THESIS OR PART THEREOF HAS
NOT BEEN PREVIOUSLY SUBMITTED FOR ANY OTHER
DEGREE.

DHARWAR
AUGUST 30, 1978


(B.K.GURURAJA RAO)

READER

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PREFACE

The present thesis embodies the work of the author who has undertaken the study of the various socio-cultural aspects of the Karimnagar region. While primarily dealing with the proto and early history of the region, the thesis also cover the pre-historic background of the region. In the task of exploring the pre-historic sites he received invaluable help from Thakur Raja Ram Singh, an amateur archaeologist and lawyer who also brought to light very important prehistoric sites hitherto unreported. Archaeologically the region in particular was a terra-incognita until a beginning was made during the last century by the discovery of several ash mounds in the north Karnataka by Col. Mackenzie. Subsequently in 1842, Cap. Meadows Taylor discovered the first ground-stone axe belonging to pre-iron age farming community at Lingsugur near Raichur. Later the pioneering efforts of Robert Bruce Foote have thrown a flood of light over a vast number of mesolithic, neolithic and megalithic sites.

After the earlier investigations of Col. Meadows Taylor (1851) the work was continued by Leonard Munn (1925) Gulam Yazdani (1915-16), Wakefield (1918), Hunt (1924) and Kwaja Mohammad Ahmed (1940).

A few early historical sites especially at Paithan in former Hyderabad State, Kondapur in Medak district and Yeleswaram in Nalgonda district have been excavated by Gulam Yazdani and Kwaja Mohammed Ahmed and Md. Abdul Waheed Khan respectively.

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During the years 1968-74 the Department of Archaeology and Museums of the State of Andhra Pradesh conducted large-scale excavations at Peddabankur. Later during 1975 to '77 excavations have been conducted at another early historical site, Dhulikatta, both under the supervision of the author. In the course of the above excavations he availed of the opportunity to extensively explore the Karimnagar region which resulted in the discovery of several proto- and nearly historical sites. The bewildering mass of cultural relics noticed in the region impelled the author to undertake a systematic study. But due to vastness of cultural horizon the author preferred to confine himself largely to the interpretation of the proto and early historical phases in the present study. Nevertheless, a brief pre-historic background of the region for the above study was felt to be essential and is dealt within a broader geographical frame-work.

Regarding the neolithic period the author mainly concentrated upon his own excavation at Polakonda in Warangal district, while mentioning at the same time the results of surface explorations by himself and others. The megalithic problem in the region being a little more clear the author dwelt upon his own excavations at Kadambapur and a few others besides other explored sites. Some of the sites mentioned in the thesis such as Agiripalli, Tenneru, Jonnawada, Peddamarur, Uppalapadu

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and Chegatur do not actually come into the selected region, however, the author felt the need to include briefly the results of the above excavations so that the reader will have a comparative knowledge of the various megalithic sites excavated in the recent years in Andhra Pradesh and also with a view to focus attention on some of the unreported excavations, conducted by himself and his colleagues under the aegis of the Department of Archaeology and Museums.

Regarding the early historical period there is no dearth of material in the Karimnagar region itself. In the course of his exploratory survey, the author chanced upon early historical sites almost at every alternate village particularly Peddapalli taluk in Karimnagar district and Jangam taluk in Warangal district. It is found cumbersome and unnecessary even to briefly mention the nature of each site leave alone presenting the various cultural aspects. Therefore he has restricted himself mainly upon his own excavations at Peddabankur and Dhulikatta which themselves have presented a sufficiently broad picture of the socio, economic and cultural aspects of the region.

My grateful thanks are due to Dr. N. Ramesan, M.A., Ph.D., I.A.S., Director of Archaeology and Museums for the great help he rendered to me in the preparation of this thesis by granting a fellowship in the Department and permitting me to utilise



the excavated material of the department.. I have also received much help from Colleagues particularly Sri G.Krishnam Raju, Smt. Noorjahan Begum, Sri Md. Sharief, Sri J.V.S.Sainath, Sri V. Yellaiah, Sri Shaik Hussain, Sri Y. Sambhu Singh for which I am very grateful. My special thanks are due to Sri S. Narayana Rao who helped me continuously in the classification and selection of antiquities and in so many other ways. I am also grateful to Miss Varalakshmi for providing me excellent library facilities. My thanks are also due to Sri Yadagiri who helped me in preparation of the draft and Sri P.Satyanarayana who very patiently and excellently typed the final copies of the thesis.

My special and grateful thanks are due to Dr. Guru Raja Rao, my invaluable guide who directed me to undertake the study in a planned and systematic way and helped in the completion of my thesis by giving suggestions from time to time.

I am also grateful to the authorities of the Karnataka University, Dharwar, and also to Dr. S.H.Ritti, the Head of the Dept. of Ancient Indian History and Epigraphy for permitting me to register for my doctoral research.

ABBREVIATIONS

AI	Ancient India : Bulletin of the Archaeological Survey of India
AP	Ancient Pakistan
APGAS	Andhra Pradesh Government Archaeological Series
ARADN	Annual Report of the Archaeological Department of H.E.H. the Nizam's Dominions
ARASI	Annual Report of the Archaeological survey of India
ARASMC	Annual Report of the Archaeological Department Southern circle, Madras and Coorg
ARDA & M AP	Annual Report of the Department of Archaeology and Museums, Andhra Pradesh
BACRI	Birla Archaeological and Cultural Research Institute
BDCRI	Bulletin of the Deccan College Research Institute
CS	Current Science
IA	Indian Antiquary
IAR	Indian Archaeology, A Review
ILN	Illustrated London News
IPPA	Foote Collection of Indian Pre-historic and Proto-historic Antiquities
JAAP	Journal of the Archaeology, Andhra Pradesh
JASB	Journal of the Asiatic Society of Bengal
JBORS	Journal of Bihar Orissa Research Society
JHGS	Journal of the Hyderabad Geological Survey
JPSI	Journal of the Palaeontological society of India, Lucknow
JRAI	Journal of the Royal Anthropological Institute of Great Britain & Ireland
JRAS	Journal of the Royal Asiatic Society

KSB	Kausambi
MASI	Memoirs of the Archaeological survey of India
PAPS	Proceedings of the American Philosophical society Philadelphia
PASB	Proceedings of the Asiatic Society of Bengal
CJMS	Quarterly Journal of the Mythic society
RASI	Report of the Archaeological survey of India
WA	World Archaeology

PART I

CHAPTER I .. The Physiography

CHAPTER II .. The Prehistory

CHAPTER - I

PHYSIOGRAPHY

The Karimnagar region selected for an intensive Archaeological study comprises, besides the Karimnagar District, the contiguous districts of Nizamabad, Adilabad and Warangal. This triangular segment forms the northern most part of Andhra Pradesh. The mighty river Godavari originated in the western ghats divides the districts of Nizamabad, Karimnagar on the south and Adilabad on the North. The region lying in between Lat. 19.45° to 18.00° and Long. 77.32° to 80.30° , is surrounded by Bidar, Nanded, Rajura, Chandrapur districts in Maharashtra and Bastar district of Madhya Pradesh.

Rivers

The Godavari, the largest river of Peninsular India rises in the western ghats at Triambak near Nasik in Maharashtra state and enters Andhra Pradesh near Baser in Adilabad district. It flows for about 283 km. and separates the Chanda district of Maharashtra and the Bastar district of Madhya Pradesh from this region.

The river Maner¹ a tributary of Godavari originates near the village, Kalkur and traverses through the Karimnagar district from west to east as far as Kurlagunta in Mantheni taluk and then flows north and falls into the Godavari in Mantheni taluk. Its length in the Karimnagar district is about 230 kms. and is an important source of irrigation. Peddavagu and Chinnavagu are the other minor rivers in the Karimnagar District.

The other important river in Nizamabad district, the Manjira, the chief tributary of Godavari rising in Pateda taluk of Bir District in Maharashtra, crosses the district from the south-west and joins Godavari near Kandukurthi in Bedhan taluk after a course of 100 kilometers. The waters of this river are well utilised for irrigation by constructing a dam known as Nizamasagar near Achampet in Banswada taluk of Nizamabad.

Karimnager District:-

Meyatummeda, a tributary of Maner, Peddavagu and Chinnavagu sustained ancient Cultures in this region from times immemorial.

Geology:-²

The Karimnager region forms part of the Indian Peninsular shield which remained the stable land-mass since the formation of the earth-crust. The earliest rocks known as Archaeans are mostly igneous and highly metamorphosed. The area was later exposed to the weathering after which molten lava erupting from the fissures flowed in the west coast and spread over the western and as well over central parts of Peninsula. The solidified lava flows are known as the traps. For the last 50 million years there was no significant change in the geological history of the region.

Archaeans

A major part of the region is occupied by Archaean group of rocks such as Peninsular granite complex, banded ferruginous quartzites; dykes of dolerite and lastly veins of pegmatite and quartz. The Peninsular granite comprises of the pink and grey granites, the colour of which depending upon the colour of feldspars contained in them. The granites are composed of quartz, potash, feldspar (pink or grey) and mica and hornblende as essential minerals.

Numerous dykes of dolerite and veins of pegmatite and quartz traverse through the granites in different directions. The hornblendic granitic gneiss of this region weathers in a remarkable manner. Enormous rounded and smoothed boulders stand one over the other and sometimes in groups. The banded ferruginous quartzites and schists generally known as Dharwars are well displayed as cutlying bands in the further east of Karimnagar and Warangal districts. They consist of hornblends, talc, chloride and mica, schists, quartzites and ferruginous-quartzites.

Deccan Traps

The Deccan Traps consist of massive or vesicular flows of basalt which have given rise to flat topped hills with plateau-like appearance.

The granite complex is marked by igneous sedimentary groups. The igneous metamorphosed rocks occur as sills and dykes.

The minerals in the basalt are feldspars and pyroxenes which occur roughly in equal amounts. The intertrappean beds consist of marls, sand stones and cherts which are sometimes fossiliferous.

Minerals Resources:-

Iron Ore

Many occurrences of magnetitic quartz rock are located in Jagtyal taluk of Karimnager district.³ Minor deposits also occur in Karimnagar, Peddapalli and Manthani taluks. In the Armur taluk of Nizamabad district ferruginous quartzites and schists are noticed at many places. Ancient mining activity for iron is noticed at several places in Armur taluk of Nizamabad district, and Peddapalli and Jagtyal taluks in Karimnagar districts and Jangean taluk in Warangal district and Siddipet in Medak District.

It was perhaps the ores of Karimnagar and Nizamabad regions which supplied the ancient iron smelter at Kena-samudram wherefor iron for the Damascus steel is said to have been exported. At the time of voyages this region was visited by the earlier Roman and Persian traders for steel, as this Indian "Wootz" was well known through out the Ancient East.

Soap Stone

Small workable pockets of soap stone occur in Turakala Maddikunta about 10 km. from Peddabankur and Paltham and

Metpalli areas of Jagtyal taluk. Lime stone is abundant at Basantnagar near Ramagundam.

Rain fall

The average rain fall in the region is 1035 millimeters (40.70"). The rain fall increases from the east towards the west and during the south-east monsoon constitutes about 86 per cent of the annual rainfall. July is the雨iest month.

Temperature

Rapid rise in temperature is from February, May is the hottest month with mean daily maximum temperature at 41.4° C. (106.5° F) and the mean daily maximum at 27.5° C. The intense heat during the summer is very trying and the day temperatures go up to 46° (114.8° F.) Among the hilly regions of Manthani and Laxettipet the temperature rises much higher and the vallies appear like hot pans.

Forests

The forests in the region can be classified into 2 types.
(1) Southern Tropical mixed deciduous and southern dry teak type. Several other types like Babul forest, Hard Wickia forest, Dry Deciduous Scrub forest, and Secondary Dry Deciduous forest are also scattered in this region.

The Mahadevpuram forest area noticed all along the bank of the Godavari river can easily be classed as the best in the quality of forests with a dominant tree height of

18 to 24 mt. and quite commonly trees measure in girth of 1.5 mt. The most important and the best teak (*Tectonagrandis*) producing areas of the state of Andhra Pradesh fall in the Karimnagar Region.

Fauna

The fauna of Karimnagar region is both rich and varied. A large variety of wild life is found in the forests of this region. The ecological distribution is not only uniform but also very much variant consistent with the quality and density of forest types. Game animals such as deer and other horned varieties are noticed in the Manthani area. Some of the species such as the black buck, four horned antelope, tiger and panther were abundant in the past, but their number is alarmingly decreasing in the recent years causing a stir among ecologists and naturalists. The black buck and the great Indian bison were very common in the past, nealgai or blue bull, spotted deer, porcupine, rabbit, hare, chital, wild sheep, sambar are very common. Among the carnivora, the tiger and panther are noticed in the Tadicherla, Mahadevpur and Singaram blocks.

Game Birds

Among the important game birds in the region, mention may be made of the green pigeon, peacock, peafowl, water duck, partridges, sand-goose, wood-duck, snipe, red jungle fowl,

king fisher, bulbul, dove, crow, myna, oriel, parkeet, wood-pecker and the common pegion. In winter season many birds of migration from North India and Himalayan regions visit this area.

CHAPTER - IIPRE-HISTORY

The pattern of wet and dry periods for a considerable part of India was suggested by Burkitt⁴ and later confirmed by Zeuner.⁵ It was noticed that the study of stone implements and climatic changes that have taken place in south-east India are to a large extent linked up with the origin of laterite, the peculiar subaerial alteration product and a widely occurring geological formation. The earliest relics of pre-historic man in the shape of stone implements of palaeolithic type are found embedded in large numbers in the low lying laterites. The formation of laterite,⁶ a decayed clayey mass, consisting largely of hydrated silicate of alumina and iron can only take place where there is considerable rain fall. In fact it is only in tropical areas and even then in areas of very heavy rainfall that laterite has formed. It would appear that water logging of the soil is an important condition for its formation. It is likely essential that there may have been an alternation of distinct wet and dry seasons in south east India. The presence of extensive deposits of laterite may indicate that the pluvial or wet period must have been very protracted.

After the formation of the laterite a dry spell seems to have set in causing the breaking up and weathering of upper part of the laterite previously formed. It is in this or underneath decayed laterite either in situ or washed down and re-deposited

that implements of the Early Stone Age occur. During the dry period the surroundings have become more congenial and the earliest inhabitants lived on the laterite.

Again during the period of torrential rain-fall the relics of ancient man were swept partly into the river gravels and partly into shallow detrital beds. When a second dry period followed areas which have been deserted earlier were repopulated. Finally a wet phase deposited an alluvium which covered the remains of the inhabitants of the preceding dry phase. During this and succeeding period in which rain fall decreased to the present day conditions more advanced stone industries made their appearance. In general it can be said that during dry periods, aggradation or a general rise took place and in wet ones there was a weathering of surface or down cutting of the rivers flowing with greater force through a narrower channel.

The above phenomena are clearly noticeable along the right bank of the river Krishna to the east of Bhimavaram village in Alampur taluk of Mahaboobnagar District. The riverine shingle mostly of quartzite deposited during a wet period is found at as high a contour as 244 mt. M.S.L. The ancient deposit is more than 100 ft. high than the present bed and 2 km. away from it. It can ^{be} inferred that during the Plio-Pleistocene the bed of the river was more than 3 to 4 km. wide. The quartzite shingle over the terraced and now abandoned flood plain was made use of by the earliest inhabitants to make their tool kit.

The section at Bhavanasi⁷ a tributary of the Krishna river in Kurnool district near a small village, Krishnapuram on the Nandiketur-Atmakur road gives an almost complete picture. There would appear to have been an initial period of laterite formation under conditions of considerable humidity denoting the first wet period. During the succeeding dry period Palaeolithic Man of the Middle Pleistocene lived on the driedout laterite plain. Then there appears to have been a period of torrential rain during which artefacts which show signs of laterite staining were washed down and redeposited in a pebble bed. As the rainfall became less violent but still fairly considerable a red clay was deposited. We therefore get a double cycle of wet followed by dry with a final wet phase.

Amarabdi

The Early Stone Age Site lies on the sloping mounds at the foot of the hill range on the west of the village. The range which has no specific name but known by some approach paths runs to a length of 6 to 8 km. in the east-west direction and takes a southward turn near the main road from Mannanur to Srisailam. The road from Mannanur to Amarabad which almost perpendicular to the above main road runs exactly parallel to the above said range.

The above hill range which is 749 meters high is covered with thick jungle and scattered with quartzite pebbles. The

flat surface on the top of the hills is covered with red soil. There is a small lake about 100 sq. mts. wide, always filled up with water.

Few nullahs originated at the foot of the hill merge into a single nullah known as the Kathava Vagu at the lower reaches, which is a tributary of the Manda Vagu.

The sloping mounds at the foot of the hill were eroded at several places due to the nullahs and at few places the nullahs are as deep as 2 to 8 mt. There are very few spots where a complete stratigraphical sequence could be obtained.

The section noticed above the nullah bed is basal dis-integrated and weathered granite rock upon which is a deposit of quartzite pebbly bed associated with Acheulian hand axes, cleavers, choppers, and flakes. The pebbly deposit was overlain by a well cemented weathered laterite of pale brownish colour and granular composition. This was covered by red alluvial clay to a thickness of about 40 to 60 cm. carried down and deposited from the hills.

Most of the tools were found slightly below the pebble deposit. At few places both the raw material and the implements were mixed-up. As the nullahs have cut the deposit deep at many places the tools mixed-up with pebbles were found over the beds of the nullahs. In fact most of the best specimens I collected have been found over the beds.

During the examination of the deeper sections at the lower reaches of the Kathva Vagu where the weathered and cemented laterite deposits are very thin, but the overlain red silt is more than a meter in thickness.

Typeologically the tools belong to early and late Acheulian Stages. The collection (about 120 tools and flakes) included excellent specimens of hand-axes, cleavers, chopping tools, scrapers, points and flakes etc. The cleavers are more than 50 per cent of the total collection but the hand axes are only 18 per cent, small axes of biconvex points and scrapers accounted for 3 per cent only. The rest are flakes or worked flakes. These points, scrapers and flakes is a part and parcel of the Acheulian industry.

In view of the raw material, i.e. quartzite pebbles, flakes, and finished tools, the site, but for natural agencies, is an undisturbed factory site of the early Palaeolithic period, and must have been inhabited by the Palaeolithic Man for a considerably long period. The surface exploration, no doubt, revealed almost a complete sequence of typology, but other associated finds such as fossils or chopping tools, etc., may possibly be gleaned only through excavation.

Nadimpalli

The road from Mannanur to Achampet after descending from the Nallamalai range to the plains, runs parallel to the hills and crosses several nullahs of which the Chandravagu appears to

be the oldest and wider. It is a tributary of the Dindi River across which a minor irrigation project was recently completed.

The Chandravagu had changed its course several times in the past. The present road and the adjacent area were once the bed of the rivulet. During the periods of aggradation, the heavy load of sand, silt and rubble had been deposited. But during denudation the river changed its course cutting the softer bed deeper and deeper. Thus the previous bed of the river which is about 8 to 9 mt. higher than the present bed, served the Early Palaeolithic Man eminently for supply of raw material to manufacture his implements.

Exploration at the place where the road crosses the Chandravagu, about 5 km. from Achampet, revealed hundreds of pebble choppers, a few cleavers, and proto hand-axes. All these tools were worked out of the riverine pebble. The industry is definitely more primitive than the one noticed near Amarabad and technologically may be termed as true Abbevillian with a little mix-up of Early Acheulian. Thus both the industries noticed at Amarabad and Nadimpalli put together will give us a continuous sequence from Abbevillian to Late Acheulian. In most of the Palaeolithic sites noticed in South India Pebble choppers and Proto-hand-axes have been found along with Acheulian tools. Here we are noticing a clear cut distinction between the Early and Late Industries.

At Giddaluru⁸ the Sagileru river meanders and where it strikes the opposite bank the section noticed above the water level is basal weathered rock, upon which is a deposit of cemented gravel overlain by a layer of river silt and this again is capped by a loose pebbly deposition of a comparatively much later horizon. Among the tools noticed at Giddalur the earlier types such as the Abbevillian-Acheulian hand axes and the rostro-carinates are more relled than the evolved Acheulian ceups-de-peing and cleavers and other flake tools. The Giddalur collection consisted of a largest number of Abbevillian-Acheulian hand axes. Comparatively the rostro-carinates are very few. The number of cleavers is also not high.

Nagarjunakonda⁹

The explorations conducted at Nagarjunakonda on the banks of the river Krishna have revealed extensive sites of Early Stone Age. On the one hand the Palaeolithic Man who settled near the Krishna River had access to the great supply of fine riverine shingle for making pebble tools, while on the other hand, those who settled along the nullahs and near the hill saddles applied themselves to the Clactonian, primitive core tools and rostroid, Victoria-West types. In Nagarjunakonda valley two industries of Early Stone Age and one of the Middle Stone Age have been found in clear and distinct horizons. The industries belong to the Acheulian phase of the Chelles-

Acheulian industry. The tools were manufactured from the riverine pebbles by detaching primary flakes by the block-on-block technique. The Nagarjunakonda industry consisted more of cleavers than any other type of tool. Hand-axes constituted 17.2 per cent; cleavers 21.4 per cent, choppers 5.9 per cent and scrapers 2.9 per cent.

Yeleswaram:¹⁰

The Early Stone Age at Yeleswaram is concentrated near the nullahs emanating from Mallannagutta west of Yeleswaram village.

Karimnagar Region

The Karimnagar region was ill explored in the past but for the pioneering work along the upper reaches of Godavary by the Deccan College under the able guidance of Dr. Sankalia.

Early and Middle Stone Age artefacts like hand axes and flake-scarpers were reported by Munn¹¹ from Allur and Jangeen villages in Peddapalli taluk. In association with these artefacts he also found few fossilised bones like humerus of Bos-Frentalis and possibly radius of the same species and fragment of an antler of cervus Sp. Ind. Cores and flakes etc., belonging to Neolithic culture (probably microlithic) were noticed at Ganjapadiga (Manthani taluk) Parlapalli, Kcheda and Sanigaram (Karimnagar taluk) and Vemulavada¹² (Sirsilla taluk).

From Adilabad Haimendorf¹³ collected large number of scrapers and blades (now in London University). Flake artefacts were noticed by S. Nagebhushana Rao¹⁴ at Asifabad in Adilabad District.

Dr. Nandikeswara Rao¹⁵ reported the occurrence of Early Stone Age tools in the Pranahita valley of Adilabad District. He noticed that the lower and middle pebble horizons containing Chelle-Acheulian artefacts and the upper zone of Early and Middle Palaeolithic technologies respectively. He also found the Early Stone Age artefacts in soil terraces of residual mounds, ridges and scrap foot zones within the altitude of (137-150 mt.). The lower gravel horizon contained few artefacts entirely composed of choppers and hand axes. The middle gravels consisted of core and flake tools. The intermittent gravel lenses overlying the middle gravels showed some upper Palaeolithic elements which composed of side scrapers, scrapers and few flakes worked on chert. The second quaternary unit of old alluvium consisted of microlithic blades and scrapers etc., chipped from agates and chalcedony. This occurrence near flood basin in the vicinity of the river at 120 mt. high is of significance as pointing out the migration of Late Stone Age Man to fertile alluvium.

Dr. Rao also noticed some organic remains such as dentition of Bos, Hystrax, Equus Crecuta associated with Early Palaeolithic cultural levels.

In the recent years Sri Thakur Raja Ram Singh¹⁶ had explored many Early, Middle and Late Stone Age sites. He also discovered Upper Palaeolithic elements at many places. Some of the Early and Late Stone Age sites have been discovered on eroded or bed rock surfaces or loosely in the nullah beds which will not help to know their true horizon. Most of the tools have been noticed from the factory or open air sites.

The Middle Stone Age artefacts too were found from factory or open air sites and eroded bed rock surfaces. The nullahs on the west of Godavary Khani, the area locally known as 5th, 6th and 8th Inclines in Peddapalli taluk, cut across gravel sections denuding middle stone age artefacts. Few trenches excavated by road contractors near Remagundam, Godavarikhani, Medipalli, Malkapur villages all in Peddapalli taluk, reveal implementiferous gravel sections to a thickness ranging between 3-4 meters. The MSA artefact bearing gravel sections are capped by clayey silt to a thickness of 15 cm. to 2.50 meters and lying directly upon the weathered sand stone.

The blade burin industry was noticed at Chittialpalli in Peddapalli taluk in a gravel section to a thickness of 20-35 cm.
Sites Recently Discovered:-

Most of the Stone Age sites, except those at Pochera and Chittialpalli, so far discovered are situated between parallels of 79 and 79.45 long. East and 18 & 19 Lat. N. and are found in between 450-500 contour lines along the Godavary river from

Dharmapuri in Jagtial taluk to Khanapur in Manthani taluk. The hand axes, cleavers and flake artefacts are found in between Anthergoan and Manthani (west to east) in Peddapalli taluk a stretch of 35 km. and Naspur of Laxettipet taluk in Adilabad to Ramagiri hills in Peddapalli taluk (north to south) - a stretch of 20 km. Few of these sites have been described here.

Gedavarikhani is the modern name for the Coal bearing area which includes parts of old villages viz. Jangoan, Andugulupalli, Malkapur, Sundilla, Jallaram, Chandanapur, Veerlapalle, Venkataraopalle, Allur, Vakilpalle etc. Early Stone Age tool types like hand axes cleavers, chopper-chopping tools, ovates and discoids are found on weathered surfaces on the north, south and west of the 6th Incline. The Middle Stone Age tools such as scrapers, points, borers, small hand axes and Bifacial points are found in the vicinity of the above two places and also east of 5th Incline, south of 8th Incline, north-east of 9th Incline etc. The Late Stone Age artifacts are found west of the Guest House, near 4th and 2nd Inclines, south of 6th/A Incline, east of 8th Incline and south of 8th/A Incline etc. Many of these sites are, in fact, factory sites. The tools are fresh but in some cases patinated due to contact with brown or red soils.

The site east of the Regional Hospital yielded more than 40 hand-axes in an area of 10 sq. meters besides few

cleavers, discoids and pebble choppers etc. The hand axes were made either on round or flat pebbles of quartzite. Both pointed and tongue shaped are found. The cross sections of these tools are biconvex, plane-convex, triangular, rectangular and trapezoidal. As a rule the edges are straight and neatly chipped or in some cases retoched. There are good number of fully worked hand-axes. The size of hand-axes ranges between 8 to 20 cms. The cleavers are much less in number with sizes ranging between 11 to 16 cms. Typeologically the industry can be designated as mid/late Acheulian.

The 6th Incline yielded variety of MSA flake tools which included side and end scrapers, bifacially worked scrapers, notches, pointed flakes, unifacially and bifacially worked points, small hand axes, borers, tanged scrapers and arrow heads on thin blades. Most of them are fairly retouched.

The flakes are either simple or Leevelleision in type. It may be noted that MSA tool-types found at Dubbapalle, Vakilpalle and 9th/A Incline are much diminished in size compared to tools found elsewhere.

LATE STONE AGE:

In Europe, West Asia and North Africa the flake culture was replaced by Upper Palaeolithic Blade and Burin Industries. The situation in India was presumed to be different and it was concluded that no such blade and burin industry ever existed independently in India. It was also presumed that the Late Stone Age (Mesolithic) was directly derived from Middle Palaeolithic. Occasional discoveries of blade cores,

blades and even blade tools were announced now and then.

Burkitt¹⁷ working on the Kurnool industries designated them as Series-III. Such tools were also reported at Nagarjunakonda¹⁸ Kurnool¹⁹ and Ganga valley²⁰. Recent studies by Murthy²¹ in Renigunta in Chittoor District and Betamcherla Caves²² in Kurnool and Paddayya²³ in Sherapur Deab, Karnataka, Reddy²⁴ on Vemula Industry in Cuddapah proved beyond doubt that the blade and burin industry existed sand-witched between Middle Palaeolithic and Mesolithic in India.

As already noted the blade and burin industry was first noticed in Gedavari Khani and Ramagundam in Peddapalli taluk and later at Gullaketa in Laxettipet taluk. Very recently in 1976 Rajaram Singh discovered two important sites near Pechera waterfalls and Chittialapalle on the Suvarna river in Adilabad District.

The Pechera site (78. 22 1/2 Long. E. 19.20 Lat. N.) yielded fluted cores and blades exactly in the nature of microliths, but much bigger in size (3.5 to 5 cm. Long. 1.9 to 3.2 cm. broad). The blade tool kit includes side and end-scrapers, notches, noses, points, borers, and a good number of burins. Among these blades, a collection of M.S.A. cores, flakes, and flake tools are mixed up, reminiscent of the earlier industry existing at the region.

Chittialpalli is situated on the right bank of the Suvarna river on Nirmal-Bhainsa road in the Adilabad district. The site is much exposed due to cultivation and erosion. The silt capping the morrum gravel is now eroded away. Here the

blade-burin industry is associated with M.S.A. artefacts.

Late Stone Age Sites:²⁵

The Late Stone Age sites are noticed in Ramagundam and Gedavari Khani areas and also in Karimnagar, Jagtiyal, Manthani taluks of Karimnagar district and Luxettipet taluk of Adilabad district. The L.S.A. people lived and worked not only on the heights of red sandy soils but also on the top of the hills and foot hills, wherever a water source like rivulet, spring or waterfall was available in the vicinity. A few sites are also noticed over the rocky outcrops, in the midst of black soil.

The important L.S.A. sites in Peddapalli taluk are Bugga (around a spring) at the foot hills of Takkellapalli range, Devunipalli, Rengapur (foot hills), Gopiahpalli, Kasulapalli (hamlet of Palthem), Sultanabad (among the rocky out creps) Kangarthy, Kadheem (out-creps and foot hills) in red or brown soils, around Peddapalli out-creps, Dharmabad (a spring in the hills) and top of the hills, Mutharam, near a rock shelter in Mallanagutta hill, Puligundam, Gudisalpet (feet-hills), Rachapalli (foot hills), Vennur (nullah) and Sabbitam village facing the Gourigundam water falls and also on the hill top.

The Gourigundam site²⁶ jointly visited by the author and Raja Ram Singh is unique and most prolific of all the sites so far discovered. The site is situated over a sandy silt plateau facing the Gourigundam waterfalls, and literally yielded hundreds of cores, blades, blade tools and waste flakes.

The cores found here are of three kinds, flat, pointed and obliquely based. The tools are blunted backs. The assemblage also includes primary flakes, chips, parallel sided blades, lunates (large number) variety of points, obliquely blunted backs and occasionally trapezes and triangles. No scrapers are noticed.

Apart from surface collection a 3 x 3 meters wide trench cut to a depth of only 12 centimeters yielded the following material, cores-160, blades and primary chips, 2,813, tools 416 and waste flakes 579, totalling 3988 artefacts. The site spreads to an area of 60 x 48 meters.

A Late Stone Age site discovered by Raja Ram Singh and later visited by the author is situated between Buchayyapalli and Narsanpalli, both hamlets of Maidampalli village in Peddapalli taluk of Karimnagar district. The site is situated among the sandstone outcrops on the right bank of the rivulet, which meets the river Gedavari within 4 kms. The outcrops are of brownish sand stone of Sullavai series of Purana rocks. A hundred meters away is found a full-fledged Microlithic site over sandy bed rocks. The plain bed-rock was incised with graffiti marks such as triangles enclosing a rayed circle, a bow, a fish, squares and rectangles with dots, inside, probably representing the way of life and the nature of tool kit of the microlithic people.

Slightly away, about 100 yards from the Microlithic site is noticed a loosely cemented breccia formed of the angular

fragments of sand stone besides rounded quartzite pebbles and cobbles, quartzite cores, flakes, blade flakes and tools of M.S.A. or Late M.S.A, pebbles of chert and chalcedony, L.S.A. cores with flakes, blades and tools. The cementing agent is sandy earth. The mass is not fully cemented but it is in the process.

Raw Material used:

The lower and Middle palaeolithic tools were mostly made on quartzite, coarse to fine grained and occasionally on chert. The sites where Middle and upper Palaeolithic were made exclusively on chert in Gullakota, Pechera and Chittialapalli. The material used for upper palaeolithic tools invariably is chert, chalcedony including agate, jasper and cornelian.

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PART II

CHAPTER III .. The Neolithic Period

CHAPTER IV .. The Megalithic Period

CHAPTER-III
NEOLITHIC PERIOD

Introduction:

For a very long time archaeologists have been puzzled by the presence of great number of stone axes noticed extensively as surface finds. The recent explorations and excavations have brought to light many neolithic settlements throughout the sub-continent. The Azile-Tardeneisean civilization may be the precursor of the Neolithic Period. The place of its origin is still an enigma but some archaeologists presume that the origin was somewhere in west Asia.

The civilization was rather a hybrid one in the sense that the archaeologists have to deal with a number of peoples brought together by a common culture of which the salient features are (1) agriculture, (2) domestication of animals (3) pottery making (4) polishing of stone implements and in the later period developing the techniques of metallurgy. All the pottery from the earlier Neolithic period was hand made. Burnishing with a dabber or spatula was probably a later development.

The habitations of the Neolithic Man in the Europe were of three kinds 1) cave 2) land and 3) lake dwellings. The cave habitation was common where lime stone hillocks were available in plenty as in England, France, Italy, Germany and Spain etc. The stalagmite formations in the lime stone caves sometimes sealed the neolithic layers below them. Land habitation is often found in the form of underground pits, covered by roofs of boughs and

twigs and the whole was made water proof by a coating of clay. Some times pits had different compartments.

Self-protection was the main pre-occupation in the Neolithic times which made the Neolithic Man sometimes seek a lake as his habitation. He built his home on piles in shallow water. At some distance from the shore in the lake of Zurich in Switzerland digging operation for raising the level of the reclaimed land brought-out wooden piles with pieces of stag-horns, stone hatchets and other implements. Similar discoveries were made in many other lakes North Italy as well.

In the Indian context so far no neolithic lake habitation has been noticed, though occasionally some caves as at Bethancherla in Kurnool district have traces of Neolithic habitation. In India the Neolithic Man preferred two types of dwellings - the pits as noticed at Burzahom in Kashmir valley and Nagarjuna-konda in Guntur district. The coarse pottery and some polished stone axes excavated previously at Burzahom resembles exactly antiquities dug from a site of Neolithic China.¹ The textured pottery, rectangular knives, bone harpoons, pit houses, polished stone celts of ovoid or quadrangular section and stone rings all have direct analogies in such places as southern Siberia, Mongolia, Manchuria and northern China.

In central Deccan especially in the upper courses of the Krishna, Bhima and Tungabhadra rivers a remarkable series of archaeological studies have been carried out. Following the excavations of Mortimer Wheeler at Brahmagiri, the study was

continued by B. Subba Rao, F.R. Allechin, B.K. Thaper, M.S. Nagaraja Rao and others.

Probable origin of the cultures

In the basal gravels of the black soil of the third aggradational phase in the Narmada Valley at Narsingpur and Hoshangabad De Terra and Paterson² found an industry characterised by flake blades, scrapers, burins, borers and points. They designated this industry, which is analogous with the Mesolithic culture of Syria and Africa, as the Black Soil Industry and classified it as the Proto-Neolithic. Subsequently Dr. Sankalia³ has brought out important evidence bearing on the stratigraphic evidence of this industry in the Pravara basin, in the Gedavari, Malaprabha - in Karnataka, Tapi in Khandesh and the Chambal and its tributaries in Malva. Since this industry contained occasionally fluted cores, which are characteristic of succeeding Neolithic-Chalcolithic cultures, typologically and technologically this industry may be the precursor of the advanced Microlithic Industry of the succeeding Chalcolithic - Neolithic phase. Stratigraphically the description of the Industry as Proto-Neolithic was confirmed at Navadateli⁴ where stone mace heads of typical hour-glass section associated with white and cream slipped pottery with black design, red ware with black painting (Black on Red) and Black and Red ware, Microliths and hammer stones were found stratigraphically succeeding the flake industry.

At Langhnaj⁵ in Gujarat three zones of microliths are found without any variation in types. In the first zone the microliths were associated with comparatively recent pottery, along with a

tanged iron dagger. In the second zone a different type of pottery with incised lattice decoration was found. The pottery is thin and red slipped over a pale brown surface. It was associated with microliths, a large quartzite mace head with an hour-glass section and pieces of two neolithic celts of schist and a copper knife. In the third zone which is purely microlithic sand stone quern fragments, microliths, ill-baked pottery have occurred. People were buried in a highly flexed posture, preferably in east-west direction within the kitchen debris.

Thus in Gujarat we have evidence of a microlithic folk being introduced into agriculture and pottery and the original mesolithic food-gatherers becoming Neolithic food producers.⁶ The evidence noted at Langhnaj in Gujarat was confirmed at Nagarjunakonda⁷ in the Krishna Valley. The clear stratigraphical evidence obtained here shows that the pre-pottery microlithic industry was succeeded by a mixed-lithic industry containing the true hunting type of microliths, along with cores, flakes of trap and quartzite made of a different technique and wheel made pottery.

At Sanganakallu Phase-I was characterised by the presence of large number of heavily patinated flakes of trap and sand stone associated with a crude microlithic industry of quartz and chert without any definite evidence of the association of pottery. Phase II is divided into two sub-periods on the basis of the relative quantitative distribution of two main

fabrics of pottery, the pale grey-ware and the coarse brown and black ware, which dominate the lower and upper levels respectively. The sub-period II of phase-II is characterised by the presence of fresh stone axes and flakes associated with a fine microlithic industry of chert and jasper with types like parallel sided blades and lunates blunted along the arc. Sub-period-I as suggested by Subba Rao corresponds to the early Neolithic Stone Axe Culture. It is characterised by coarse brown and black hand made wares and a few pieces of pale grey-ware in diminishing proportions. In this phase a few sherds with violet and purple paintings on a dull back-ground and sometimes on a dull red slip were found.

Phase-I and II were separated by a thin barren layer to which Subba Rao has suggested that the gap between phase-I and II may be filled-up by a large number of lightly patinated chipped and ground-tools. He characterised this phase as the Early Neolithic.

At Peddabankur in Karimnagar district fluted cores with pointed, flat or chisel ends along with crescents or lunates, parallel-sided blades, leaf points besides, a unique arrow-head of milky quartz were found over a thin gravel layer capping the natural morrum-bed. This implementiferous layer was sealed by a thick deposit of black cotton soil to a thickness of 45 cm. The collection was associated with a highly weathered and fragile pottery in tiny fragments. The surface of the pottery looks dull red possibly due to water logging indicated by many shells of mollusc in the sterile black cotton soil cap. Scores

of ground stone tolls of trap found in unrelated strata in course of excavation may belong to the above phase which may be the early Neolithic as suggested by Subba Rao. There was no evidence of any pale grey brown or black wares typical of the Neolithic.

At Polakonda in Warangal district the total Neolithic deposit with no visible variation in soil composition is as thick as 2 mt. which is an indication that the Neolithic habitation continued for a considerably long time, unruffled by any extraneous influences. The ceramic assemblage consisted of grey, pale-grey, blotchy brown, pale red and small fragments of black burnished wares. The pottery from the early levels is more gritty and distinguished by low firing leaving a thick black core inside. No painted pottery was recovered in any of the trenches, few sherds were decorated with incised oblique slashes, chevrons, cord and finger nail impressions, etc. Neolithic phases at Polakonda may correspond to Phase-II sub-period II of Sanganakallu.

As a result of the above discussion it may now be possible to reconstruct the sequence of the Neolithic culture.

Stage-I of Neolithic is represented by Phase-II sub-period II of Sanganakallu and phase I and II of Polakonda in Warangal district. This is characterised by fresh stone axes and flakes associated with pale grey, coarse blackish grey, reddish brown and small quantities of burnished ware. No painting with red ochre or pre-firing purple painting was noticed at Polakonda. The stone blade industry is also scanty as also any knowledge of

metal. The other noteworthy feature is the absence of any floors and rarity of other antiquities such as beads etc., For the above reasons this may be designated as the Early Neolithic.

Stage II as represented at Utnoor, Maski-I, the lower Neolithic of Piklihal and parts of Brahmagiri, This is characterised by ground stone-axe industry, a rudimentary flake-blade tradition, domestication of cattle, sheep and goat, etc. The pottery consisted of hand-made grey, brown-buff and lesser quantities of black or red burnished, slipped with purple painted decoration. Black on red painted ware appears for the first time on the scene. There are also few terracotta figurines of humped cattle and birds as at Piklihal, Sangana kallu, rock paintings and rock brusings. Still there is no evidence of house plans and building material. Post holes and rammed earth floors in various levels suggest that the structures were made of perishable material. Copper has already been introduced as represented by a rod of inderminate use as found at Maski. Stone beads constituted amethyst, carnelian, agate, chalcedony, coral, shell, glass, etc. Animal remains included fresh water mussel, common rat, short horned humpless cattle, buffalo, sheep and goat. Domestication of these animals may demonstrate a pastoral economy of the settlers, tending towards food production.

Stage III as represented by Brahmagiri I-a and I-b Tekkalakota-I, T.Narsipur-I and Nagarjunakonda. This phase is marked by mud-floors and circular hutments, bronze and copper

objects, crude microliths of jasper, flint, agate, common opal and other locally available material besides, hand made pottery of coarse grey-fabric, burnished wares with types like simple globular vessels perforated vessels and spouted vessels. Occasionally painted sherds, and incised wares are also present. Burials of infants with bodies folded-up and packed into the pot, inhumation and extended burials, processes of excarnation and secondary burials and double burials represent the different modes of the disposal of the dead.

Stage IV represented by Tekkalakota-II, Payampally and Hallur-II of Period-I. This is marked by specialised types of copper implements, profuse blade industry. The pottery consisted of burnished ware, brown and black, coarse dull red and painted wares akin to the Jorwe fabric, prolific stone axe industry, blade industry marked by parallel sided blades and lunates etc. Copper objects constituted double edged axes and fish hooks. The floors were paved with locally available schist. The phase is also marked by urn-burials as found at Tekkalakota, Hallur, Brahmagiri, Daimabad, Nevasa and Nagarjunakonda.

3. The Sites and their distributions.

In 1860 Le Mysurier discovered the first Neolithic tool in India and drew attention to his discovery of ground and polished stone implements in the Valley of the East Tons river in the United Provinces (now Uttar Pradesh). The evidence of the earliest Neolithic period in Andhra was discovered in 1876

by Robert Bruce Foote in the form of an adze of sand stone, at a place called Vadamanu in Guntur district. In the neighbouring state of Karnataka the first ground stone axe was recorded by Col. Meadows Taylor in 1852 itself, at Lingsugur in Raichur district. Robert Bruce Foote between 1885 and 1891 discovered over 50 sites which are geographically located in the present districts of Hyderabad, Krishna, Guntur, Nellore, Kurnool, Cuddapah and Anantapur. For well over half a century, no new investigations have come to light, after the pioneering work of Foote; however considerable evidence of the neolithic farming communities was recorded in the excavations by the Nizam's State Department of Archaeology which conducted excavations at Maski, Gordon (1945), Wheeler (1942), Subba Rao (1948) R.Subrahmanyam (Nagarjunakonda 1954-60) Allchin (1960) Ansari and Nagaraja Rao (1969 at Sanganakallu) again at Pikkijhal, more recently by Sankalia (1964) and Nagaraja Rao and Malhotra (1965) at Tekkalakota. Nagaraj Rao (1971) at Hallur, Sundara at Teral (1971) Seshadri (1971) at T.Narsipur, Paddayya (1973) at Kodekal, Hanmantha Rao and Nagaraju (1974) at Hemmige, etc. Rami Reddy (1976) at Palvoy.

During the year 1976 Polakonda in Warangal was excavated by the author under the auspice of the Department of Archaeology and Museums, Government of Andhra Pradesh. In 1977 a minor excavation was conducted by N.R.V. Prasad at Budigapalli, a Neolithic-Chalcolithic site, in 1978 Prasad has excavated Chagatur in Mahboobnagar district another Neolithic-chalcolithic site. The distribution pattern of the sites as outlined above

shows that the neolithic farmers had settlements in almost all parts of Andhra Pradesh excepting some unexplored regions.

4. Ecology and Settlement Pattern.

There is no evidence of plant remains of the Neolithic times in the Karimnagar region. The ecological setting may be similar to the present day arid and dry climate characterised by thorn and scrub jungles interpersed by grass lands. But there must have been thicker vegetation and heavier rain fall. The area at which a prolific collection of stone axes possibly used for felling trees is found, is now completely denuded of any kind of forest. At Polakonda the neolithic axes and adzes were found over the sloping plains of the south face of Peddagutta hills. The area must have been thickly covered with jungle during the neolithic times. Similarly the early historical site at Peddabankur had a scatter of neolithic axes indicating the presence of a thick jungle in the past. The entire historical site at Peddabankur was covered with a thick deposit of regur or black soil over a bed of granitic morrum. At a few spots the black soil covering was washed away denuding the natural morrum. Many microlithic implements were collected over these denuded spots. At the same level under the thick black soil cover in other trenches the industry was noticed over the same morrum bed indicating that during the post-microlithic period the entire black cotton soil must have been deposited during a wet period.

Arid and dry climatic conditions during the neolithic period was evidenced by the presence of some plant remains such as accacia (thumma in Telugu) or Dalbergia and Zizyphus (ber or regi in Telugu) species from the site of Palvoy.⁸ Muzumdar and Rajaguru have proved, on the basis of their analysis of the fossil soils from the Kupgal excavation, that similar environmental conditions were present during the neolithic times. The plant remains of accacia species from Maski⁹ of teak (Tectona grandis) from Hellur¹⁰ and Zizyphus from Kodekal¹¹ suggest a similarity of climate in Karimnagar region as well.

Fauna:-

The animal species included cattle, sheep, goat, swan, antelope, possibly horse¹², gastrapoda, common Indian rat, domestic humped cattle, deer, hog, wild elephant, tortoise and squirrel etc.

Settlement Patterns:-

As in other parts of India the Karimnagar region was also a favourite haunt of the Neolithic Man. Occasionally neolithic axes were collected around Late Stone Age sites and some times in the vicinity of Megalithic burials but permanent settlements are very few. The recently discovered settlements are Thogarrai on the banks of the river Maneru, Kadambapur also on the Maneru and Peddabankur, all these sites in Peddapally taluk, Budigapalli on the banks of the Peddavagu, in Husanabad taluk of Karimnagar district; Polakonda, Kolakonda and Devaruppula in Jangaon taluk of Warangal district.

Thogarrai - (Pl 1. c)

The ring of granitoid hills enclosing plains of regur, the perennial river Maneru in the neighbourhood and dolerite dikes appearing like black greenish stripes over the granite hills made a very congenial abode for the Neolithic Man. The rock shelters in the hills at a considerable height from the black soil plains gave him both protection from wild animals and a cosy shelter from the rigors of climate, the regur plains for his farming and whether he knew water storage or not the river in the vicinity supplied water all through the year. A neolithic factory site was discovered over a granitic outcrop. The collection included large number of unfinished tools besides a good number of finished adzes and axes.

Kadambapur

Kadambapur about 5 km. from Thogarrai is mainly a Megalithic burial site, where a number of neolithic stone axes were collected over the sloping plains of the hills abutting the river Maneru. Many rock shelters and caverns noticed in the hills must have been occupied by the early Neolithic Man. Number of grinding grooves were noticed over the granite outcrops. Extensive exploration had not resulted in the discovery of any permanent settlement. But a few sherds of hand made grey ware collected betwixt the river and the plains may imply that the neolithic settlement might have been eroded away by the seasonal flood of the river, as the present river bed is not more than 5 to 6 feet deeper than the plains.

Peddabankur:- Pl 2 b

The historical mound lying by the side of the Karimnagar-Peddapalli road has been excavated under the supervision of the author for six field seasons. Many neolithic stone axes were collected on the surface and in the unrelated cultural strata. The entire historical site was covered by a deposite of black soil, not more than 2 mt. in thickness at any spot. There are neither granite hills nearby for his shelter, nor dykes of dolerite for making his, tool-kit. Apparently the tools must have been imported from places like Kadambapur or Thogarrai, etc. Peddabankur is an example where the Neolithic Man, instead of selecting a hilly region settled over plains possibly to serve his farming needs.

Budigapalli: Pl 2 c

The entire Husanabad taluk in Karimnagar district and the adjoining Huzuarabad taluk in Warangal district are studded with large number of Megalithic Burials. Budigapalli, a small village about 6 km. from Husnabad, is encompassed by a ring of hills locally known as Valasagattu, Sanjivarayanigattu, Venkayagattu etc. The granitic hills, the rock shelters and a nullah emanating from the hills, now cross-bunded for supplying water to a huge lake was suited for a Neolithic settlement. Dolerite rock is available in plenty. Explorations over the early historic^{al} mound girdled by a Mediaeval mud rampart at the foot-hills of Valasagattu yielded besides early historical pottery, neolithic stone axes, a mace head with a perforation

of hour glass section and few sherds of hand made grey-ware. The 3 main rain gullies, emanating from the hills, deeply cut the mound. At the lowest levels of the sections cut by the nullahs, at a depth of nearly 7 to 8 ft. the aforementioned assemblage was noticed.

Recent trial excavation conducted by Prasad¹³ over the early historical mound established the presence of neolithic-chaleo-lithic occupation at the lowest level. A few neolithic celts associated with microlithic cores, blades and lumates, few steatite beads and a hearth, grey ware hand-made pottery were the finds recovered.

Kolakonda:

Kolakonda village on the river Peddavagu in the Jangoan taluk of Warangal district is another important neolithic settlement, situated in between the granitoid hills on the east and the river on the west to a stretch of 200 square meters approximately.

Devaruppala:

It is a considerably big village near Mondrai in Jangaon taluk of Warangal district. The neolithic settlement is situated about 2 km. south of the village, over the black cotton plains near the granitic hills. In the vicinity of neolithic settlement there is an extensive megalithic cemetary consisting mostly of pit circles and few cist burials.

Polekondai - (pl 1. a, b)

Polakonda in Jangaon taluk of Warangal district is about 10 km. from Devaruppala and approached from Mondrai, a small village on the road from Jangoan to Suryapet. On the north of the village and abutting the Peddagutta hill a early historical site was noticed. A good number of polished stone axes were observed over the early historical site, the plains and the sloping terraces on the south-west of Peddagutta hill.

While exploring a channel dug-out recently by the P.W. Department along the Kommulagutta hill (a northern extension of Peddagutta) few sherds of hand made grey ware of neolithic affinity were recorded. Adjoining the channel, at the find spot of the grey-ware sherds a trench was sunk which revealed a hearth of burnt clay associated with a large number of hand made neolithic pots and a broken ^{stone} axe. A granite rubber with a squarish profile evidently used for burnishing pottery was also found near the hearth. The rubber was finely ground on one side and pecked on the other.

The neolithic settlement over the sloping terrace at the foot of the Kommulagutta hill enclosed an area of 100 sq. mt. The soil to a depth of more than 10 ft. was covered with sandy silt brought down from the neighbouring hills by the rains in course of time. Abutting the habitation is a shallow rivulet emerging from the gorges of the hill. Though dry at present the nullah must have been much deeper during the neolithic times, else there is no other source of water in the vicinity.

Datta

5. Material Culture:-

Out of the material remains of the neolithic people which survived the ravages of time was the stone axe made out of igneous or metamorphic rocks such as diorite, dolerite and basalt. The other less common varieties were small tools either hafted or used as adzes, small chisels, picks, fabricators, hammer-stones and sling stones etc.

Technique of Manufacture:-

Coghlan¹⁴ has postulated several stages of manufacture. According to him the neolithic tool might have developed from a palaeolithic sharp edged scraper. A lighter variety of ground axe is associated with the Solutrean and other Upper Palaeolithic Cultures of Western Europe. Foote¹⁵ recorded four stages of manufacture from the earliest stage of chipping till their completion as highly polished tools. Subbarao¹⁶ also suggested four stages. Allchin¹⁷ postulates the following five stages before it finely appears as a finished ground or polished tool.

- 1) Primary, rough flaking to block-out the tool
- 2) Secondary, fine flaking to regularize the form and sharpening the edge
- 3) Pecking or hammer dressing
- 4) Edge grinding
- 5) Over all grinding

As already noted a prolific factory site was discovered over one of the hills at Thogarrai near the source of a dolerite

dyke. Large number of axes were collected from the spot in various stages of manufacture.

The tools collected from the factory site at Thogarrai appear to have been manufactured in an Acheulian factory site. All the tools have been made-out of dolerite and the author collected many tools in the final stage of manufacture. The trap rock from which the tools were made is found in small handy nodules. Large number of primary flakes and chipping of the tools indicate that the neolithic man took large nodules and adopted alternate flaking method usually noticed in the Acheulian sites. This method was adopted to get a straight cutting edge on both the sides. Wherever he could not find a convenient core to get two cutting edges he adopted the method of blunting one of the cutting edges similar to that of backed blade as noticed in the Late Stone Age tools. Later the blunted edge was again flaked alternatively to get a triangular body. The alternate step flaking gives the sharp zig-zag cutting edge but with high ridges on both the sides. These high ridges, as suggested by Subbarao must have been removed with a pointed tool such as a cylindrical-type fabricator found elsewhere. The cutting edge on both the sides is made sharp by removing small neat flakes along the cutting edge. Dr. Sankalia¹⁸ suggested that a nodule or pebble is fashioned into a pointed-butt axe by the block-on-block technique or direct percussion method with a spheriod or discoid hand-hammer and the resultant product looks like an Abbevillian hand axe.

In the second stage the uneven surfaces, ridges and depressions were removed with a pointed tool. This is technically known as 'pecking' or 'battering'. In the third stage the tool is ready for grinding. For this concave or basin shaped boulders were chosen and with the help of sand or similar coarse material and a little water serving as abrasive, the tool is moved up and down in the groove. Many such grooves appearing like lenticular slits, about 5 cm. deep were noticed at Polakonda and Kadambapur. As suggested by Sankalia, at a time only a small portion, usually the edge portion was ground.

Many writers including Subbarao¹⁹ suggested the fourth stage when the whole axe was finally polished. Foote²⁰ also found on the 'north hill' in the town of Bellary well polished grooves 7" to 8" long and 1 to 1 1/2 inches deep. These grooves evidently were intended for edge grinding but not polishing. Polishing must have been done on concave surfaces as suggested by Sankalia²¹. Only one fully ground axe was recovered from Peddabankur excavations. The pointed butt was also fully ground, later after use the tip was broken. The tools appear more like cult objects than a tool. It is possible that after the edges were blunted after a long use the axe was utilised as a grinder.

The fine grained rocks were always favoured for making the edge tools and the coarser and harder stone for rubbers, grinders and hammers etc. The axes which form more than half of the total collection were made of basalt while the hammers,

rubbers and grinders of coarser rocks such as granite, quartz, diorite and quartzite were used. Foote recorded that spheriod rubbers which he designated corn-crushers were made of pistacite (Green stone). Allchin²² also noted that nearly half of the spheriod rubbers were made of pistacite.

Forms of Tools:

Among the finished tools the commonest is the axe. The transverse (medial) cross section varies from tool to tool. They are (a) elliptical (b) lenticular (c) rhomboidal (d) rectangular and (e) triangular. The butt end is sometimes blunted, rounded or pointed.

(a) Axes with an elliptical or ovoid cross-section are comparatively few in Karimnagar region, only two tools having been recovered from Peddabankur. These have a triangular profile and were fully polished including the body and the butt end. No chipped surface is retained without polish. The sharp, some times straight or convex cutting edge was obtained by polishing on both the surfaces. The types found at Bellary²³ have the sides rounded off and slope gently to meet at the centre leaving little or no flat medial area. The forms found at Nagarjunakonda²⁴ have generally an unworked, middle portion and lateral margins absent in all the specimens. The cortex surface is retained in patches and it was considered, in view of its association with predominantly microlithic assemblage, as one of the earliest types from Nagarjunakonda.

(b) The tools with lenticular cross-section are also generally rare but one or two such types were included in the collections from various sites in the Karimnagar region. They are sometimes trapezoidal and long ovoid in shape. The lenticular section was obtained by leaving flat surfaces on both the sides converging to point at side edges. The cutting end is almost semicircular. This type of tool is generally thin and must have been used for some light type of work. A tool found at Polakondam measured 10 cm. long with the cutting edge ground on both the sides. It is very thick towards the butt-end. The specimen from Peddabankur was unfortunately broken in the middle and only the lower portion with cutting edge is found.

(c) The tools of rhomboidal section are conspicuous by their mid-ribs on both the surfaces. In external form they are triangular with straight or convex cutting edge. A tool found from Peddabankur with similar cross-section is as long as 23 cm. (9 1/2 inches). This shape like that of pick-axe, was particularly adopted to have good grip for handling rather than for hafting, as such a lengthy tool must have been used for digging with the butt-end and as well for cutting with the opposite end.

(d) Tools with rectangular cross-section are also rare. They have broad sides, straight or slightly convex, and generally flat on both ventral and dorsal surfaces. Axes with semi-rectangular section were found in Bellary and also in Amaravati in Guntur district.²⁵ This type was also reported from

Nagarjunakonda which has more or less parallelogramatic cross-section with splayed cutting-edge formed by bevelling of the upper surfaces.

(e) Triangular Cross-section: - Only two broken specimens one from Peddabankur and the other from Kadambapur were recorded. The butt-end of the first tool is blunted and the cutting edge is missing. The tool was fully ground with a straight mid-rib on the ventral side, the dorsal being flat. The specimen found at Kadambapur was unfinished but broken in the middle. It has sharp longitudinal sides and a thin almost straight cutting edge. It is possible that this tool was meant to serve as an adze rather an axe.

ADZES: (Pl 8.6)

These tools may be divided according to medial section into 3 types viz. (a) Planoconvex (b) Triangular (c) Rectangular cross-sections.

The adzes are comparatively rare than axes but four excellent examples have been collected, two from Budigapalli, one from Peddabankur and one from Polakonda. One tool from Budigapalli with a trapezoidal section is 18.5 cm. long. The cutting edge on the plain dorsal side is bevelled. Only the cutting edge on both the surfaces was ground. The pecked rugged surface was left unground for transverse hafting. This is one of the finest tools, a type which is not probably recorded anywhere so far.

The other specimens from Budigapalli, Polakonda and Peddabankur are smaller and the plain dorsal surface is also slightly ground. In this region adzes with triangular and rectangular cross-sections are not found. The types recorded from Nagarjunakonda²⁶ are mostly plano-convex. There are also two examples with triangular cross-section. One specimen has a very sharp, and straight cutting edge bevelled at both the surfaces.

Shoe-Last-Celt:

Another more specialised form of tool is the plano-convex, shoe-last-celt. The upper dorsal convex surface curves round to meet the flat under side which rises gently to meet it like the head of the fish. Peddabankur excavation recorded a fine specimen with a plano-convex cross-section. The butt end is narrower than the cutting end but not pointed. Both the ends, the flat undersurface and the top ridge were smoothly polished. The pecked lateral surfaces were left unground so as to facilitate hafting. Subbarao²⁷ suggested that the presence of this highly specialised tool might indicate that the Bellary neolithic folk were agriculturists. He feels that the tool is hafted adze-wise to an 'L' shaped piece of wood and used as a hoe. Snakalia²⁸ noted that some plano-convex tools were used as millers having a flat under surface and the top convex and slightly rounded. The tool found at Peddabankur would eminently suit to mill grains etc. over a "mealing trough" described by Foote,²⁹ as the fully ground undersurface appear to be continuously rubbed over a concave surface. Both the ends

of the tool are mint fresh without any use marks by which the more probable surmise would be that it was used as a muller than as a hoe.

Another tool also from Peddabankur 9.5 cm. long (3.7 inches) with a plano-convex cross-section has a pointed butt. The cutting edge is bevelled at the underside to meet the smooth upper surface. The lateral sides from the middle of the tool to the butt end are left unground possibly for handling. This tool must have been used as a hand tool for either horizontal cutting or vertical scraping. (Pl 2 a)

PICK:-

Picks are generally rough and irregular tools, with narrow sharp working edge and blunted butt-end. They have sometimes a convex longitudinal profile and a flat undersurface with either a single or double cutting edge. At Piklihal³⁰ two specimens were recorded; both are flaked roughly to a square section and bare traces of heavy wear upon the body and would thus seem to have been hafted.

A long specimen collected from Kadambapur has a plano-convex cross-section with a pointed butt and a sharp cutting edge, and was damaged after use. But for the cutting edge the remaining body of the tool is left unground.

SPHEROID RUBBERS:- (Pl 2 c)

It is likely that the rubbers, either spheroid discoid or oval, were used for a variety of domestic uses, mainly as crushers, rubbers or pounders and possibly also as hammers.

There are two such tools in our collection both recovered from Polakonda excavation in the neolithic levels. The discoid rubber was found near a hearth in association with large number of hand-made grey ware pot-sherds.

Allchin³¹ described the flat discoid grinding stones carefully flattened on both sides as pallets. He suggested that they were probably used for grinding powders etc. Such pallet found at Polakonda is much damaged on one side with battering marks, the other side well preserved. On this side also marks of battering are apparent. The other specimen made of granite is a all ground spheroid rubber found in the early neolithic level.

RING STONES:- (Pl 2 c)

These are thick, small round or rectangular tools with their surfaces smoothed by pecking and grinding, having a central hole about an inch or half an inch in diameter from both the surfaces. Sankalia³² suggested that such ring stones seem to have been used as weights for digging sticks and are thus suggestive of primitive agriculture. It is also possible, as he further suggested, that they also served as mace heads. At Bellary on the north hill, Boys³³ found one such specimen, one more was found by Fawcett³⁴ at Kupgal and by Foote³⁵ at Kanchikeri. In the excavation at Navadatoli³⁶, 33 objects which can be classed as ring stones were found. Sankalia³⁷ also found one Ming stone in the mesolithic context at Langhnaj. Todd³⁸ found one complete specimen on a hillock at Yerangal, near Bombay along with micro-liths. They were also reported from Mohenjodaro³⁹, Harappa⁴⁰ and

Chanudaro⁴¹.

Peddabankur Excavation yielded a completely ground flat stone of pink granite with a knob like protuberance on one face and the two lateral sides having depressions for a right hand grip. Evidently this may be one of the two pieces of a rotary quern, the other piece would be the above described ring stone with a hole of hour-glass section. The ring stone must have been rotated from both sides and due to continuous rotation of the knob inside the hole, it would take an hour-glass section. The rotary quern, was perhaps, used for milling grain in small quantities. The possibility of their utility as mace-heads may not altogether be ruled out but it cannot be hafted securely with a wooden handle due to the ridge in the middle of the hole.

QUERNS:-

The querns or mill-stones with concave surfaces were usually made of granite. Two types of querns may be distinguished, a) with a circular grinding surface brought about by round ball-like millers (b) flat surfaced querns. The querns were prepared by hollowing out a roughly oblong block of granite. The hollow surface became deeper and deeper after repeated use, and in some cases the block had been turned over and the flatter underside also used. The quern made of granite from Polakonda excavation has a concave surface and a flat underside.

BLADE INDUSTRY:-

The Neolithic culture was invariably associated with blade industries in most of the sites. At some places the industry is

very rich than the pecked and ground stone tools. It is generally non-geometric consisting of a high proportion of simple artefacts, besides much waste material. They include, primarily long and short parallel sided blades, lunates and fluted cores. Typologically they are very much different from the microlithic industry of the Late Stone Age. Foote noticed many microliths in association with stone axes in Patpadu in Kurnool district.

Subba Rao⁴² classified the microlithic industry characterised by short blades, fluted cores into three categories; one: 1) pointed or sharply rounded cortex 2) flat base and 3) a chisel end. Many cores have faceted platforms which is an indication that the core was prepared in advance by removing small flakes for the punch to rest firmly at the time of striking.

The implements from Brahmagiri⁴³ blade industry were divided mainly into 7 types 1) double edged blade without retouch, some blades have one edge slightly serrated.
 2) blades with battered back blunted by steep retouching.
 3) crescentic blade with battered back
 4) narrow leaf-like blade with point at both ends, and battered back
 5) beaked graver (burin)
 6) chisel ended blade
 7) side scrapers.

At Maski⁴⁴ the industry is mainly a flake-complex dominated by blade industry with a marked emphasis on the production of

narrow forms. Significantly some geometric forms such as trapezes and burins has also been noticed.

The industry at Nagarjunakonda⁴⁵ in Guntur district has no impact of ribbon flake tradition as noticed at Maski, Brahmagiri and Pikkihal. The blades have a tendency to become shorter in length with the advancement of neolithic culture. The tools were mainly classified into five types viz. 1) simple blades, 2) backed blades 3) lunates 4) points and 5) scrapers.

In the course of excavation at Peddabankur in Karimnagar district a large collection of microliths was recorded. The industry is mainly non-geometric but for a few pieces of triangles and trapezes. The material is chert chalcedony, cornelian and jasper; quartzite and crystal is very rare. The collection included conical shaped cores with pointed base, longitudinal flake scars merging at the pointed base struck from a common platform. In some cases the cortex surface was also chipped. The point is so sharp that it can be effectively used. There are also double platform cores operated from both sides. Chisel ended cores are a rarity.

The flakes are mostly parallel sided with both edges retaining the primary flake-cut without retouch. The tools are long and often thin with triangular or some times trapezoidal in cross-section when the medial edge removed by taking out another flake. The second variety of blades are leaf shaped with a concave undersurface narrowing to a distal end. The medial ridge

is often truncated and it is likely some were used as arrow-heads.

The lunates have secondary working on the margin opposite the sharp edge which is invariably the chord path. The secondary working consisted of steep, often vertical blunting and does not show any trimming. The section is very often wedge shaped.

The scrapers are made either on a flake or on re-utilised core. The thumb nail scraper is discoid in out-line and trimmings all around the periphery.

The chip points were made from flakes that taper from the butt to the point or by snapping fragments obliquely from both edges of a thin flake. The butt end appears to have been truncated for hafting. There is a fine example from Thakallapalli (in Peddapalli taluk) where the point was made by snapping fragments obliquely from both edges and the butt end truncated for hafting. This is made out of a flake of triangular transverse section tapering to a point. A similar example is also found at Maski.⁴⁶

POTTERY:-

Many neolithic tools have been collected from various sites in Karimnagar region but pottery is rarely found on the surface. Only the excavation at Polakonda gave an idea of the neolithic pottery in this region. The pottery generally consists of crude and coarse and hand-made ware with a few burnished types. The clay is not fine. Coarse sand was often used as degraissant.

The pottery was well burnt to a grey, dull brown or black colour, often with an unburnt core in the fabric.

The pottery is mostly plain and no decorations of any sort either combed, incised or painted are noticed on the pottery of this region. The clay used for neolithic pottery from Maski has been found to contain a variety of minerals such as quartz, muscovite, biotite, chlorite, kaolinite and orthoclase, which all go to form the granitic rocks. Paramasivam⁴⁷ also notes that the clay must have been procured from lacustrine sources i.e. from tanks and ponds.

The granularity of the texture suggest that the clay was not thoroughly levigated. The presence of large particles of quartz sand is a typical feature of the potteries of thick section. Mica is also an important constituent of the clay.

^{Some} Majority of the pots were turned on wheel and the striation marks appearing on some sherds led Allchin to believe that the neolithic craftsman employed the turn-table and beater and anvil techniques. While their regular and indistinct striation marks testify the use of turn-table, the employment of the beating method is borne out by the uneven thickness of the wall. Most of the rims of the jars were perhaps prepared on a turn-table and later luted to the hand-made body of the pot, which is the reason that they are thick and rough at or below the neck.

At Polakonda we have some evidence about the type of kiln in which the pots were baked. Allchin⁴⁸ suggested that the

pottery would be fired on the ground as a mixed lot of fuel and pot in something like a bonfire kiln. But the evidence at Polakonda appears contrary to this. The kiln, though small, consisted of thick walls of clay in which the pots were kept and probably burnt by applying indirect heat. A part of the kiln with many broken sherds of pottery nearby and a discular dabber apparently used to straighten the sides of the pots were exposed.

The pottery from Polakonda, in Jangoan taluk of Warangal district, was recovered from three main cultural horizons. The top layer consisted of modern humus consisting of ashy brown sandy earth with a mix-up of rubble. The lower part is irregular and undulating due to erosion. From this layer the pottery of the late mediaeval period was encountered which is mostly greyish and well fired.

Below this stratum is a deposit of brownish sandy silt without ash, but of loose composition. The pottery of the megalithic phase consisting of red, tan, matt red and black and red wares was encountered in this stratum. The recognizable shapes are deep bowl with flanged rim, vases with flanged and beaded rims, lid-cum-bowls etc. The black and red ware shapes are mainly dishes and rimless bowls. There is also a little mix-up of hand-made burnished brown and burnished black ware sherds. This overlapping had occurred in all probability not due to continued habitation from neolithic to megalithic but due to settlement of the megalithic people over an earlier

inhabited and eroded surface. The other finds from this horizon are few objects of iron such as an arrow-head, a knife and a broken blade.

Below this stratum a thin sterile deposit of loose sandy earth and a thin gravel patch were recorded in two trenches, a trait not visible in other trenches. The total neolithic deposit with no visible variation in texture and composition than the earlier strata is as thick as 2 mt. which may go to prove that the neolithic habitation continued for a considerably long time.

The neolithic ceramic assemblage consisted of grey, pale-grey, blotchy brown, black burnished and pale(matt) red wares. The clay of many specimens was well levigated. However, in some vessels a regular admixture of sand and other refractory ingredients are noticed. No micaceous element is visible. The pottery from the early levels is more gritty and distinguished by low firing leaving a black core inside.

The entire range of pottery is devoid of the characteristic features of wheel made pottery. As suggested by Allchin⁴⁹ two main techniques were possibly used, the turn-table method and the dabber and anvil method. A large concave sherd must have been used as a turn-table in which wet clay was kept and rotated to fashion the forms. Dabber was used during the fashioning operations. The uniformity of the body suggest the use of some sort of turn-table, but the rims were fashioned with hand.

SURFACE TREATMENT:-

Some of the wares appear to have been treated with slip without admixture of any noticeable colour. The reddish brown, matted, grey or black either of the exterior or interior must have occurred only in the course of firing. The uniformity of thickness of body may suggest that they were made on some sort of wheel, although majority of the bigger pots were hand made. Some of the rims appear to have been modelled with hand. No painted pottery was recovered from any of the trenches. A few sherdas were decorated with incised oblique slashes and zig-zags, cord and finger nail impressions etc. No graffiti marks are noticed. A single sherd of pale red ware with an out turned rim has very light spongy body and floats in water.

TYPES:-

The selected types include a huge jar with an elongated neck and straight sides. On the shoulder is a thick horizontal applique band and decorated with finger-tip design. Another jar of similar body has a cord of cable design below the neck. Analogies are noticed at Tekkalakota⁵⁰ and Hallur.⁵¹

A channel spouted deep bowl had its analogies at Hallur⁵² Hemmige⁵³ and T.Narsipur⁵⁴. Bruce Foote⁵⁵ discovered a similar bowl at Patpad, Kurnool district which he called it as a milk bowl. It was painted with narrow purplish lines below the edge of the lip near the spout, but in the Polakonda specimen no such painting is visible.

Small-sized bowls with featureless rims of medium to coarse fabric are quite common. Similar types occurred at Brahmagiri⁶⁶, Piklihal,⁵⁷ Maski⁵⁸ and Nagarjunakonda⁵⁹.

There is another huge jar with a featureless horizontally splayed out rim with a concave neck and globular or bulging profile. On the shoulder is a thin applique band pasted horizontally which terminates into curved ends in opposite directions. This type without the applique band was also noticed at Piklihal⁶⁰, Hallur⁶¹, Nagarjunakonda⁶², Brahmagiri⁶³ and Maski⁶⁴. Khare⁶⁵ describes the pot as neolithic pot-urn.

Among the brown ware are a dish-on-stand and a lugged bowl. The lugged bowl was also recorded at Sangenakallu.⁶⁶

DISPOSAL OF THE DEAD:-

Evidence regarding burial practices comes from Utnoor, Piklihal, Maski, Brahmagiri, Tekkalakota, Hallur, T.Narsipur, Nagarjuanakonda and Palvey. At Utnoor⁶⁷ the skeletal remains of an infant were contained in a shallow depression in the Layer-9. Only the ribs and one humerus survived unbroken and the skull was completely crushed. Due to the absence of teeth it was inferred that the skeletal remains pertains to a newly born child. A Piklihal⁶⁸ evidence of extended burials was recorded. In all, 3 skeletons have been found. The body found in layer-6 had been buried in a extended posture in a shallow coffin shaped pit, which was covered with small stones. The body lay-on its back, the head being roughly towards north and

slightly inclined to the right. Funerary articles included a spouted earthen ware jar to the left of the head and tall vase, both hand made and burnished grey-ware. The third skeleton which was an adult male comes from layer-4. The body lying on its back but the head was oriented towards south. The grey-pit was filled-up and large boulders were kept on the top. The grave goods included five large chert blades, and two basaltic axes at the feet.

At Brahmagiri, evidence for the disposal of the dead comes from the sub-phase I-B. Two kinds of burials viz. the extended burials in grave pits and the other of burial urns were encountered. The adult and grown-up children were buried in an extended position in regular grave contained the body of a child about 10 years of age. In this case the body was oriented in the east-west direction, the head being towards east. The body was in fully extended condition and resting on its back. The left hand was placed near the pelvic region. Funerary offerings included a vessel with funnel spout near the head. Wheeler suggested that this vessel with the cylindrical spout may have been used to pour libation into the mouth or ears of the dead.

The other kind of burial i.e. the urn burials were recovered from sub-phase I-B. The urns were hand made and dull mottled grey in colour. They have globular body with wide mouth, flared rim and rounded base. The skeletal remains contained in the urns were invariably those of small children whose bodies had been tightly folded to fit into the restricted space. The

urns were usually covered either with a bowl placed upright or inverted or sherds of broken urns. A lipped or a channel bowl or a deep bowl was used as a cover.

At Tekkalakota⁶⁹, the burials of period-I comprised of two graves embeded in the red morrum. The skulls and the long bones possibly of excarnation were buried in the N-S orientation, the head usually placed towards south. In one fractional burial remains of 3 individuals were found buried indicating possibility of a "community burial". It is more likely that it may be a family burial rather than a community one. In period-II, there was evidence of extended inhumation. As many as 12 extended burials of adults, 11 of them found in a row were exposed. The orientation of the adult burials was north-south, the head being towards north. In one case the skeleton was laid in four pots joined together, which is reminiscent of the chalcolithic practice of Deccan. The funerary offerings consisted of earthern ware pots, which included bowls of black and red ware painted in white. Occasionally children were buried under the floor of the house.

Three burials have been excavated at Hallur⁷⁰ all of them being double pot burials containing bones of children. These pots were buried mouth to mouth under rammed floors within a house. The burial furniture consisted of bowls of burnished grey-ware small bowls, with squat body and smeared with a red ochre on the interior. In another burial large storage jars were used for burial purpose. These double jars placed mouth-to-mouth were decorated with a crude applique rope or chain

pattern, two small knobs conical in shape were affixed. Nagarajarao has suggested that the shape of the burial urns and the typical applique knobs of the burial jars indicate symbolically that the dead was given a re-entry into the mother's womb. It is interesting to note that similar multiple pot burials have been found in the chalcolithic sites at Nevasa⁷¹ Diamabed⁷² etc. an indication of the chalcolithic intrusion into the neolithic burial practices.

7. T'NARSIPUR:-

The single burial uncovered at T'Narsipur⁷³ was an extended one and roughly oblong cradle shaped pit, having its major axis in the east-west direction. The body was lying on it back with the head towards east and the crossed hands placed on the abdomen. Two large grey ware pots of globular body and everted rims were kept near the head. There was also a shallow lipped bowl and a pottery neck-rest near the head.

NAGARJUNAKONDA:-

The most important evidence regarding the disposal of the dead, comes from Nagarjunakonda⁷⁴ in Guntur district. The funerary remains of the neolithic people inhabiting the valley was

classified into three categories.

- a) in a cemetery for adults and children
- b) urns for infants within the habitation area, and
- c) in a pit of an adult male

a) Cemetery:- The cemetery revealed two strata of burials. The earliest stratum was associated exclusively with extended inhumation burials. The burial furniture consisted of only pottery. Graves associated with upper layer showed the predominance of secondary burials preceded by a process of excarnation. Interestingly there is a double burial of a male and female both adults showing some amount of intermingling of bones. It was suggested by the excavator that the bones of both the dead bodies were inhumed at the same time inspite of the fact that both of them might not have died at the same time. But the intermingling of bones may suggest that both the male and female were not buried at the same time. It is likely that either of the male or female who died first was buried and later when the other partner died the burial must have opened and the dead body interred. During the process of opening up of the burial and interring the second dead body the intermingling of bones might have taken place. However, this is a case of a family burial during the neolithic-chalcolithic. There is evidence that the children were also buried after excarnation. The orientation of the skeletons was invariably north-south, skull being placed approximately to the

north. Pottery mostly comprised of spouted vessels as burial furniture. Pots were kept near the lower half, below the waist, of the dead. Four spouted vessels in the case of skeleton No.10 were found right upon the femur and tibia. This practice of placing the pottery over bones continued during the megalithic period (vide Kadambapur Meg.III) as well.

Only two examples of infant burial remains deposited in urns came to light from Nagarjunakonda. Fragmentary bones were found in urns inside the habitational area. Unlike those of Brahmagiri urn-burials which involved primary processes, the urn-burials of Nagarjunakonda appear to be of secondary nature. There is no fundamental difference in the method of disposal of the dead between the infants and adults.

There is an unusual burial excavated in Pit.VIII of Site 46-A which produced a skeleton in complete articulation. The pit was covered by a cairn-heap. The long hefty body had been squeezed inside in the pit, that the middle portion of the skeleton was sagging below. The orientation was from north to south. The excavator hypothesised that there might have been a practice of leaving hearth and home by other occupants consequent to the death of some family member. When the usual practice of disposal of dead at Nagarjunakonda was inhumation preceeded by excarnation, why this particular burial was of primary nature? Evidently, the kith and kin were afraid of coming nearer or handling the dead-body who died possibly of some contagious

disease. The same fear of disease and also sentimental detachment in the later period possibly led to the practice of cremation.

PALAVOY:-

Evidence of the dead at Palavoy⁷⁵ came to light in the habitation area in the form of four infant burials. All these were grey-ware urns of single pots covered with ordinary or lipped bowls or two pots placed mouth to mouth. Unlike at other places the dead were buried outside the house but within the vicinity of habitation area. No burial goods came to light.

HOUSING PATTERN:-

The physiographical and geological features have greatly influenced the establishment of the neolithic settlements in the Karimnagar region as in other regions. The earliest settlements were usually made on the tops of the granite hills, or on the levelled terraces on the hill sides or on saddles or plateaux between two or more such hills. It appears the neolithic folk also chose open terraces at the foot-hills wherever the natural rock shelters were available. Some times they selected black-soil plains as at Peddabankur. They also lived near the river banks at places like Kadambapur, Togarrai, Kolakonda in north western Andhra Pradesh and Chetnepalli, Nagaladinne in the south-west.

During the second phase mud floors are in evidence and circular hutments of wattle and daub on a wooden frame. At

Palavoy⁷⁶, a single floor with as many as 30 post-holes circular in plan has been traced. They ranged in diameter from 80 to 20 cm. The post holes yielded considerable quantities of disintegrated wood of acacia or dalbergia species, indicating their use as posts in house constructions. The floor was made of pale brown soil mixed with sand.

Several circular and rectangular plans of floors of various sizes enclosed by huge granite boulders were noticed on the slope and top of the Palavoy hill. Similar feature was also noticed at Piklihal⁷⁷, Tekkalakota⁷⁸ etc.

The presence of several rock shelters found at Budigapalli and Kadambapur in the vicinity of the find spots of the neolithic celts or rock paintings may indicate that these were occupied by the neolithic man. The house plans in Karimnagar region may more or less agree with those noticed at other excavated sites such as Brahmagiri, Maski, Piklihal, Hallur etc. At Piklihal and Tekkalakota there was evidence of walls of split bamboo-mating, plastered with mud and supported by woodenposts. The roofs of these houses were built of some perishable material and the floors were daubed with red morrum-silt, rubble and occasional boulders. Plastering with lime or clay and dung was also noticed.

SUBSISTENCE AND ECONOMY:

The economic life of the Neolithic Man was a combination of agriculture, animal husbandry as well as hunting activities. Bruce Foote discovered several terrace-like structures which be-

designated as 'linchets' found on the summits of the hills and their slopes, these 'linchets' were used for habitation and also for farming. The clearing of natural plateau and the construction of rocky platforms as suggested by Allchin, is a distinct characteristic of the neolithic sites. He thinks that most of the neolithic settlements are found to coincide with these terrace-complexes, and thus it seems safer to see the origins of the terracing system. He suggested that the terraces served three main functions viz. habitation, cattle-penning and cultivation. According to him the tiny fields cultivated at Piklihal even to this day often at considerable heights above the plains, over terraces may have a direct bearing on the survival of a practice originated in the neolithic times.

But self-protection was the main pre-occupation of the neolithic man which made him sometimes seek his habitation over these terraces for protection from wild animals. The terracing system must have served his primary need of self-protection from wild animals and secondly to some extent cultivation. With a sparse population and plenty of food in the form of fruits, tuber and some wild grains available, his needs of cultivation might not be so pressing as in the present day. None of the excavated sites produced any evidence of cultivated grains. The neolithic man depended besides cultivation, upon hunting and fishing and whatever naturally available such as fruits, vegetables and edible grasses or tubers. However the general occurrence of

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domestic implements such as querns and grinders, may suggest some practice of agriculture. The evidence of grains such as horse-gram (*dolichos fiblorus*), green gram (*phaseolus radiatus*) and ragi (*eleusine coracana*) from Pimpalli in Tamilnadu, horsegram from Tekkalakota, ragi from Hallur which are not far removed either geographically or culturally from the Karimnagar region indicate that similar grains were grown or procured during the neolithic period here. The jungles and shrubs were cleared and land made suitable for farming with the help of stone axes and also by putting fire to the thorny shrubs. Ring stones may have been used as weights for digging various types of tubers.

The tiny blades of chert etc. were perhaps used as barbs or arrow-heads and hafted to wood or bone with resins to be used as knives, sickles or blades. The nodules of chert were used for making fire, a practice enduring till the present times. The other method was to churn wood which would not be effective during wet season. Some pots with perforated bases recovered at many neolithic-chalcolithic sites must have been used for storing fire.

It was suggested that a fused bone of an ox exhibiting ankylosis resulted on account of heavy and prolonged concussion recovered from Palavoy⁷⁹ and Hallur⁸⁰ may be a proof that the neolithic farmer used the bull for ploughing operations or for prolonged heavy traction. Ankylosis may

not necessarily result due to carrying heavy loads but restless movement with damaged bone may also result in ankylosis.

Besides some sort of cultivation, the neolithic man depended on hunting and fishing. Cattle served his cultivation and food needs. The animal remains from various excavations reveal fresh water mussel, common rat, short-horned humpless cattle, sheep, goat, deer, ibex, wild dog, wolf, antelope, spotted deer, tortoise, swan and fowl. The common rat is still consumed by a section of the population. Horse which is a rare animal was attested to for the first time at Halur. The spheroid or spherical stone balls were employed as missiles for killing fast moving game.

The large number of bone tools like axe heads (Rami Reddy 1976) points, chisels, blades and antlers were used for various purposes. Some bone points or needles were used for removing excess clay while making the pots or for perforating them. Many bone points found in the megalithic and early historic levels at Peddabankur indicate that they were mostly used as potter's pins as some of them were found near kilns. They were sometimes used ~~also~~ as sewing needles. Ramireddi suggested that the "axe heads" found in his excavation at Palavoy were employed for skinning, scraping and cutting the hides.

Ornaments:

There was no evidence of any kind of ornaments in the early neolithic settlements in the Karimnagar region. But the

neolithic-chalcolithic sites at Budigapalli and Chagateor many steatite disc beads, terracotta beads and a few shell objects came to light. In a late neolithic face at Polakonda a single copper spiralled ring which must have been used as a finger ornament was recovered. The sites like Palavoy, Bastipadu, Velpumadugu yielded beads of steatite, agate, carnelian and chert. A large number of disc shaped beads of steatite were found at Pusalapadu in Giddalur taluk of Prakasam district, and Ramapuram⁸¹ in Banaganapalli taluk of Kurnool District.

There was also a good collection of beads from other sites. They included beads of amethyst, carnelian, agate, chalcedony, coral, shell, glass and paste. Gold objects though rare in other sites but were found at Tekkalakota, in the form of a gold pendant or ear ornament with three coils in the centre and dumb-bells at both the ends. Considering the proximity of the gold mines at Huttī and Kolar their occurrence is justifiable. Nandikeswara Rao⁸² of Geological survey of India reported that there is clear indication of gold mining as evidenced by the specks of gold in the slag and gold quartz in the chalcolithic level at Narsapur in Kalyandurg taluk of Anantapur district. He also reports that the neolithic people had knowledge of diamond-bearing rocks such as kimberlite etc. Gold coils have also been reported at Diamabed.⁸³

ART AND PAINTING:

The works of art of the neolithic people depicting the socio-cultural life of the people have survived in the form of rock-paintings and decorations on the pottery and bruising on the rocks and terracotta objects etc. The author recently chanced upon some rock paintings situated at Regonda and Budigapalli in Karimnagar district, Kokapet in Hyderabad district, Muppidamala in Mahboobnagar district, and Kothavaran in Kurnool district of Andhra Pradesh.

The paintings were found at Regonda, a small village in a low rock shelter under the ceilings. Many ancient iron working spots were also discovered there. The paintings are all of red ochre and consist a group of tall men, some vertical lines intersected by short horizontal lines at the top indicating head and hands of humans, trident with a long shaft mounted over a box and intersecting a circle below, two little men shown in lines mounted over a horse of disproportionate size, horizontally placed tridents crossing a vertical line, trident with a small shaft etc. On either side of these symbols are men or women with long curving plaited hairs.

The paintings at Budigapalli are found at the top of Valasagattu hill near Peerlagundu inside a rock shelter under the ceiling hardly about 1.50 mts. in height. Here are found two horses with riders possibly holding spheres and another horse with a rider at the back. One of the horses in the front line has stripes like that of a zebra. In the same level

as the two horses, a man stands erect with his left hand kept akimbo and the right hand holding a long sphere resting on the ground. Slightly below the third horse is a figure looking like a circle with spokes.

At the other corner there is a trident above a circle with radiating lines and two oblique lines below the circle. The trident has a long shaft which bisects the circle and goes below to serve as a third leg in addition to the two oblique lines. By the side of the trident-cum sun disc symbol is a couch supported on legs with a reclining back.

This symbol with a trident and a circle below is a very common symbol in many proto-historic paintings in A.P. This was also found over many orthostats of megalithic cist burials at Chagatur with a little variation. Instead of the curving lines below the circle they are shown at the top of the circle and below the trident. On the clinostat of another burial, instead of a trident the thickly incised circle has two horn like projections at the top and a vertical line below. On the orthostat of a third burial the circle below the trident has not horns. In a fourth burial there are two circles one inside the other with a long vertical line bisecting both and two straight oblique lines emanating from each circle.

at Regondla (Plate 4.a)

The most notable of all is a standing bull in a walking gait with the tail dangling away from the body. The bovine animal was fully painted, with a hefty body, short stumpy horns

and a prominent hump. Unfortunately the painting has encrustation of black patches of fungus. In vigour and vitality the bull has parallels in Ajanta paintings only.

KOKAPET:

Kokapet village is about 10 km. north-west of Hyderabad near the lake of Gandipet which supplies drinking water to the city. The proto-historic paintings are noticed under the ceiling of a rock shelter, perching at a height of more than 200 ft. from the ground level over the top of granite hills. A few sherds of unburnished grey ware and polished stone axes collected in the vicinity may be a convincing evidence to date them to the neolithic chalcolithic period. There is a group of megalithic pit circles about a kilometer away towards north of the paintings in the fields of Mukundas Govindas, a gem miner and dealer of Hyderabad. These paintings consist of herds of stag with long curvaceous horns and a dog like animal thwarting the way of the stag herd.

About a kilometer west of the megalithic burials two more paintings of red ochre are noticed, one consists of multiple ciphers one inside the other. The second one is an 'L' shaped design filled-in with a wavy pattern, commonly noticed over the Malwa ware.

MUDUMALA:- (Pl. 46)

In Mudumala village in Makthal taluk of Mehboobnagar district groups of avenues and alignments of the megalithic origin are noticed. On the south-west of the village there are

some proto-historic rock bruising containing a crudely incised humped bull with an upraised tail, the horns curving forward and genitals prominently shown.

There is also a human figure possibly a Mother Goddess with out stretched and upraised hands and legs apart. The breasts are shown hanging sideways. The third figure is a curveliniar trident over a circle along with the above two figures, there are three curvelinfar tridents with circles, one has side prongs curving coutside and the circle is slightly ovoid in the second, the side prongs are oblique and in the third the side prongs curve inwards with a perfect circle below.

ROCK PAINTINGS AT KETHAVARAM: (pl 3 a-b. c)

Recently a group of rock paintings were discovered in the shelters near Kethavaram village in Kurnool district. Geologically the rocks at Kethavaram are extensions of Kurnool limestones which overlie the shale bed rock. The whitish quartzitic formations at Kethavaram with plain vertical surfaces eminently served the primitive artist as a natural background. The long lines of hills, marked by deep crevices and caverns, formed into a horse-shoe shaped valley. Nowhere the hills are more than 100 ft. high. Some of them which afforded passage from ancient times to nearby villages were locally named as Chinnachittari and Peddachittari. The entire valley is scattered with Middle and Late Stone Age tools

of dark pinkish chert, agate etc. The rows of caverns at the farther northern end known as the caves of elephants require an intensive exploration.

The paintings, all of red ochre, are noticed over the front portion of the over-hanging rock shelters, and natural caverns. The principle theme depicted is the jungle life. The artist, sitting securely in his rock abode, visualised the jungle life which he had experienced and gave expression to them on the natural canvas. The untrained artist was not restrained by any particular style. Whatever passed in his mind provided the impetus to his brush. There was no confusion of colours. He chose a single colour to depict the varied species.

The people depicted were not strangers to the jungle life; they are a part of it. We find a number of little men shown in perspective, scaling a hill, or a man, with genitals prominently shown, stands up in horror and raised his arms for help at the sight of a tiger. There is a head of a tribal chief wearing a diadem and without indication of eyes. Slightly away are two rows of stags, two in each row and facing each other, which is reminiscent of the theme noticed in the pottery of cemetery-H at Harappa.

There is a man standing over the branch of a tree and below is a scaffolding. The jungle life is represented by a good number of monkeys briskly capering over rocks or woods, a bear

scaling a hill shown in triple wavy lines probably in search of honey, squatting bulls enjoying siesta, birds appearing like parrots perching over trees, a herd of stag rushing forth in terror. There are some geometric designs such as a trident shaped object, a zig-zag line tapering upwards possibly indicating the hazardous ascent of a hill, an apsidal locality having three pathways and the interior intersected by horizontal lines may perhaps resemble the plan of a cave, a thoroughfare into which minor pathways merge, an oblique line or wooden post divided by spikes at regular intervals, may be a ladder or flight of steps, series of double vertical lines intersected by smaller horizontal lines at the top, may be palm trees etc. There is a square design intersected by a vertical lines and at the top the sails and mast may probably represent a ship or boat.

There are some curious designs such as an endless loop and two vertical parallel lines intersected by two more horizontal lines and the ends of the lines connected by loops. These two designs are found in the megalithic and the chalcolithic context.

Above the paintings over the facade of the Peddachittari cavern, there is a brahmi inscription in ornamental characters datable to around 2nd 3rd century A.D. It reads as ka sa panjara suha. At the top of the cavern there is a brick structure datable to the early historic period possibly coeval with inscription.

The problem of the absolute age of the paintings is most acute. The stags facing each other and the multi-horned stags is a commonest theme of the proto-historic times and the aforesaid endless cord and the loop designs may also strengthen the conjecture. The brahmi inscription, the brick structure at the top of the hill, and an extensive early historic habitation in the vicinity are evidences of late intrusion into a jungle setting.

THE RACIAL FEATURES:-

The excavation at Polakonda during the first field season gave us no clue regarding either the burial practices or the racial affinities of the early Neolithic Man. In order to fill up this lacunae I took up further excavation at Polakonda for the second field season. But unfortunately I failed even in my second attempt. Even ^{from} the excavation at the chalcolithic site at Budigapalli in the neighbourhood of Polakonda conducted by Prasad, at my insistence, nothing fruitful has come out. Thus we have to fall back on the studies of the skeletal remains recovered from other sites at Nagarjunakonda, Pikkhal, Maski etc. Even Sangankallu (Dr. Subba Rao 1948) which I feel can be favourably compared with the Polakonda phase has not yielded any skulls.

Nagarjunakonda, though of a late phase, is probably the nearest example with a regular cemetery of the neolithic people away from the habitation. The skulls are dolicho and

mesocranial. The studies of the skeletal remains from the sites of Brahmagiri, Piklihal and Tekkalakota revealed foreign, as well as autochthonous racial elements ranging from Scytho-Iranian to Australoid or Proto-Australoid and Mediterranean.

CHRONOLOGY:-

So far we have nine sites in the southern neolithic which have radio carbon dates. Of these Palavoy and Utnoor are in Andhra Pradesh, Hallur, Kodekal, Sangana kallu, T. Narsipur, Tekkalakota and Terdal in the Karnataka State, and Payampalli in North Arcot district of Tamilnadu. Of these the two earliest dates comes from Kodekal (Gulbarga district of Karnataka) and Utnoor in Mahboobnagar district of Andhra Pradesh. The radio carbon dates for the ash mound at Kodekal is 2336 B.C. and that of Utnoor is 2170 B.C. Unfortunately we do not have any date of Dr. Subba Rao's excavation at Sangana kallu. The charcoal samples collected from Polakonda is now under analysis. After getting the results it may be possible to push back the date to 3000 B.C. for the beginnings of the early neolithic. If we take the last neolithic phase into consideration as suggested by Dr. Allchin who compared it with the Jorwe phase in Maharashtra, it is possible to presume that the neolithic period had a total lease of nearly 1500 years, possibly twice affected by outside influences, once by the chalcolithic and later by the megalithic.

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CHAPTER IV
MEGALITHIC PERIOD

Introduction:

As it will be too long to describe the thousands of megalithic monuments scattered in South India, I restrict^{ed} my study mainly to north Telangana comprising the districts of Nizamabad, Medak, Karimnagar, Nalgonda and Warangal. I have also included few megalithic sites in districts of Hyderabad and Mahboobnagar which I have personally explored and felt they are important for this study.

Much work was done in Telangana by some European scholars such as Wakefield, Hunt, Taylor etc. But, to our regret, no detailed reports of systematic work have been brought out subsequently. The Department of Archaeology and Museums during the recent years protected a large number of megalithic burial sites under A.P. Ancient and Historical Monuments and Archaeological Sites and Remains Act, 1960 (A.P. Act VII of 1960). Excavations were conducted by the Department at Yeleswaram (1962-63) in Nalgonda district, Pochampad (1965-66) in Nizamabad district, Kadambapur (1974-75) in Karimnagar district, Agiripalli (1986-77) in Krishna district, Peddamarur, Uppalapadu and Chagatur (1977) in Mahboobnagar district. But for the preliminary reports included in the Annual Administration Reports of the Department no detailed reports could be brought out, due to various reasons.

Distribution pattern of Megaliths:

In archaeology the term "Megalith" denotes a tomb built of huge stones either dressed or undressed. These monuments have interested scholars and the general public from the beginnings of antiquarian research of the 16th century, although it was not until the middle of the 19th century that these great rude and rough stone structures were grouped together under the name "Megaliths".

The megalith builders of South India represent a distinctive cultural phase which succeeded the primitive neolithic culture. The succession from neolithic to megalithic appears to be sudden and peaceful. Whether the new culture entered South India along the west coast or by sea, spread rapidly far and wide into the peninsula and became characteristic of the region. Much of the region in which the monuments are found is marked by granitic gneiss. They are found in groups varying in number from place to place.

Besides South India these are found in Makran, Baluchistan, Mesopotamia, Egypt, North Africa, Spain, Brittany to Cornwall, Wales, Northumberland, Scotland and Ireland. In North India the burials are found over an extensive area from Sind in the West to the Assam hills in the east and from Vidarbha to Kashmir.

Distribution pattern in North India:

The distribution pattern of megalithic remains in Maharashtra shows that they are concentrated mainly in the eastern Vidarbha region, with sporadic occurrences in Khandesh at Ranjala¹ and Tekwada² and Central Deccan as at Bhosari near Poona.³ Near Khaiwara⁴ and Dongargoan⁵ in Wardha District and Chak Vittalwada and Kukutchinda in Chanda District, at Mahurjhari,⁶ 14 km. west of Nagpur, at Junapani⁷ 12 km. from Nagpur, large number of stone circles were found. Junapani was considered to be an important megalithic burial site due to its situation at the northern boundary of the megalithic zone of South India containing a vast burial complex.

In district Durg⁸ at Dhanora, 90 km. from Raipur in Madhya Pradesh an extensive megalithic site with more than 500 burials was located. These monuments have special features and are distinct by themselves. They are apsidal stone enclosures with a massive cap stone lying flush with the Cairn. Similar monuments are found near Amarabad in Mahboobnagar district of Andhra Pradesh.

Many dolmenoid cist burials were found near Chunar⁹ on the banks of river Ganga in Mirzapur district. A large number of cairn circles and cist burials were noticed at Kokora¹⁰ in the Varanasi district of U.P. In Rajasthan these monuments were found near Khera¹¹, Satmas, Deosa, etc. In Kashmir, near Burzahom, were noticed a large group of menhirs in different states of preservation.

TYPES OF MEgalithic MONUMENTS:-

Glyn Daniel¹² divided the megalithic monuments of Western Europe into five types (a) the menhir or single standing stone, (b) groups of standing stones set in rows or alignments (c) the circular setting of large stones, (d) the chamber tombs walled and roofed with megaliths and (e) the apsidal temples as at Malta.

In the past several scholars used different terms for the same type of burials such as cairns, cromlechs, and kistavaens. Meadows Taylor¹³ has divided the monuments in South India in three general classes:- 1) cromlechs - erections of large slabs of stone open at one side 2) kistavaens or structures smaller than the cromlechs constructed on the same principle but closed on all sides 3) cairns or small tumuli surrounded with single, double or triple circular rows of large stones.

Krishna Swamy¹⁴ described several types of monuments in Chengalpat district as of two distinct types. They are broadly styled as a) the dolmenoid cist (b) the cairn circle symbolised by the letters D and C.

a) The dolmenoid cist is a burial chamber of stone circumscribed by single or double stone circles. Various forms of dolmenoid cists were categorised as D1, D2 and D2.

b) The cairn circle symbolised by letter C comprises of a stone circle surrounding a cairn. Beneath the cairn is found

a single urn, multiple urns, or a legged terracotta ~~sarcophagus~~. The varieties were classified by symbols as CU1, CU2, etc.

The same author described a large variety megalithic and associated monuments in Cochin as follows:-

- 1) dolmenoid cist with or without port-hole,
- 2) urn-burial indicated by a cap stone,
- 3) hood-stone or umbrella stone or Kodakallu consisting of a large dressed hemispherical slab of laterite and flat bottom.
- 4) topikallu or hatstone stone consisting of a dressed circular stone resting upon four quadrilateral clinostatic stones joining up together into a square at the base on the outside and bevelled in such a way as to close-up along the diagonals of the square.
- 5) menhirs are monolithic rude granitic slabs standing high above the ground.
- 6) rock-cut caves excavated underground in lateritic sub-soil and found in association with megaliths as at Porkalam, Ayyal, Chevvanur, Kattakampal, Kandanasseri and Kakkad.

K.R.Srinivasan¹⁵ and N.R. Banjarjee have classified the monuments of the Chengalpat district as 1) cairn circles
2) dolmenoid cists made of dressed slabs of stones and covered by a cap stone 3) dolmenoid cist of rough unhewn boulders
4) dolmenoid cist lying flush with a heap of cairn 5) barrows or cairn-mounds marked by quartzite.

Guru Raja Rao¹⁶ has classified them as 1) rock-cut caves,
2) hood-stones 3) pit burials 4) menhirs, alignments and avenues

5) dolmenoid cists 6) cairn circles 7) stone circles 8) barrows.

Amarabad:- (Plate 5 a, b)

In the course of my exploration around Amarabad I discovered a huge complex of dolmens near Rayalagandi on the road to Padara from Amarabad. This complex is situated on a granitic out-crop extending over an area of more than 300 sq. mt. A nullah locally known as Manda Vagu bisects the complex. On the north about 200 mt. away is the Rayalagandi, a hiatus, between the hills. On one of the hills is a temple dedicated to Channakesava, constructed during the mediaeval period.

The area at the foot of the hills is now under dry cultivation, at which a few nullahs originating from the hills flow towards south and merge into the Manda Vagu. In the beds of these nullahs I collected many palaeolithic tools such as hand-axes, cleavers and choppers of Late Acheulian coeval with Middle Palaeolithic flake industry.

There are about 20 to 25 dolmens in the complex with intervening space running between 10 to 15 mt. The dry masonry walls were constructed by piling-up of flat cut slabs, about 40 cm. wide and 80 cm. long and 15 cm. fm thick. The roof was covered by a roughly circular or rectangular granite slab with a thickness of 15 to 20 cm. The height of the walls below the roof slab never exceeded 1 mt. The plan of the room enclosed by the wall is sometimes apsidal and some times

roughly rectangular. Outside the walls a filling of cairn or small rubble was packed upto the roofing slab to make the room cosy and for protection from reptiles etc. A single entrance always facing north with an average width of 60 to 80 cm. with a threshold slab about 10 cm. higher than the outside surface as if to obstruct reptiles entering into the room are noticed.

It is rather difficult to assign these dolmens to any particular period. The flooring consisted of the bed rock without any possibility of excavation. Dolmens of this are also noticed at Tumas¹⁷ in Egypt, Dhanora¹⁸ in the Durg district of Madhya Pradesh, and Palani hills¹⁹ in Coimbatore district of Tamilnadu where the pits inside these Dolmens consisted of a few bits of bones, beads, glass bangles but without any pottery. One dolmen at Dhanora contained a copper vessel of the late neolithic or chalcolithic periods.

CONDIMALLA:-

The village is about 6 km. from Alampur in the same taluk in Mahboobnagar district and in between the rivers Tungabhadra and Krishna. The doab between the two rivers from Alampur to Sangameswaram is studded with pre-historic and historical sites. Middle Stone Age and neolithic stone tools are noticed at many places. Due to periodic flooding by the rivers no chipping floors of the stone ages were noticed.

Gondimalla is a small hamlet with an extensive megalithic burial complex. One group is situated over the lime stone formations abutting the river Krishna, which may be termed as Site I for the sake of convenience. Site II is about a km.away from the village in between Gondimalla and Uppalapadu. Site III nestles on the slopes of the hills spreading over the bank of the river Tungabhadra.

The megalithic types found here are similar to those found in the north Karnataka region, as at Raichur, Bijapur, Dharwar, Bellari, Bidar and Belgaum districts.

The district of Mahboobnagar is mostly covered by archeans, the oldest of the geological formations. The Purana sedimentary rocks are found along the bank of the river Tungabhadra, which consist of Cuddapah and Kurnool formations. The Cuddapah rocks extend from Kolhapur - Somasila area eastwards and extends upto the eastern boundary of the district. The Kurnool formations which begin roughly west of Kolhapur extends westward into Alampur taluk and beyond, upto Sangameswaram. These formations rest on granites at plain levels. Besides, Banaganapalli type of basal conglomerates abounds in this region. These conglomerates consist of quartz pebbles with feldspar-matrix, cherts and jaspery fragments derived from the Cuddapah rock. The soils of the area are black cotton, red and calcareous loam.

SITE - II- This is a cist complex situated on the slopy shale formations on the right bank of the river Krishna.

CIST -I: The plan of the cist is an exact square with the orthostats made of shale slabs planted in an anti-clock-wise Swastika pattern. The inner space measured 1.50 x 1.50 mt. with a 65 cm. diameter the port-hole opening towards south into a passage, vertically lined with shale slab. The passage is 2 mt. long and 50 cm. broad. The circle enclosing the cist with a diameter of 7 mt. is a dry circular wall of piling shale slabs.

CIST - III: It is a huge cist measuring 2.00 x 2.25 mt. with a port-hole carved in the southern orthostat leading to a passage chamber (150 x 60 cms). The port-hole was closed with a single slab. The total length of the northern orthostat is 2.80 Mt. with a thickness of 10 cm. and a present height of 90 cm. The cist is enclosed by a circular dry wall of shale slabs and provided with vertically planted casing slabs as in the case of a Buddhist stupa.

Most of the burials in this complex are passage graves and may belong to the Konnur group²⁹ of North Karnataka with passages towards south. Some of the burials have passages narrowing towards south. Another notable feature is that the burials are found in rough alignments.

SITE-III:- This site extends for more than 200 sq. mt. and consist of nearly 100 burials, over rocky barrn slopes studded with conglomerates and quartz. All the burials are cists and none of the tombs now retains a cap stone.

CIST - I:- Instead of a boulder circles, the cist is encircled by a double circle of horizontally placed shale slabs; each is roughly wedge-shaped and rounded at the outer end. The diameter of the inner circle is 3.80 mt. and that of the outer circle being 4.70 mt. with a gap of 35 cm. between the two. The cist consists of 4 vertically planted Cuddapah slabs to form a perfect square of 1.95 sq.mt. The orthostats were arranged in anti-clockwise Swastika pattern. A 68 cm. diameter port-hole is found in the eastern wall opening on to a passage. The passage is 1.10 mt. long and lined with vertical shale slabs which are lower in height than the cist and provided with 40 cm. door at the eastern end. The cist was filled-up with small rubble and broken Cuddapah slabs probably of the cap stone.

CIST-II:- This is also provided with a double circle of horizontally paved slabs. The outer circle measured 5mt. in diameter and the inner circle 3.30 mt. The cist is erected with shale slabs ^{laid} planted on edge in anti-clock-wise pattern. It is rectangular in plan and measures 1.86 x 1.38 mt. A 45 cm. diameter port-hole is carved in the eastern orthostat. No passage chamber is provided.

CIST-III:- It is an oblong cist (175 x 0.50 mt.) in the north-south direction, neither enclosing circle nor packing of cairn is noticed.

SITE-III:- This complex is situated on the sloping plains of the hills on the bank of the river Tungabhadra. Most of the burials have circles of conglomerate stone boulders available nearby. The burials are mostly pit circles, occasionally interspersed with oblong cists.

BURIAL-1:- This is provided with a circle of 19 boulders of conglomerate stone with an inner diameter of 5.50 mt. There is a tight cairn packing of shale chips, sand stone and conglomerates.

BURIAL-2:- A small burial ^{with} ~~are~~ 16 closely planted boulders with a diameter of 3.25 mt. There is tight cairn packing of cuddapahs and other types of stones in the middle.

This BURIAL-3 is an interesting burial with a circle of 36 boulders. The circle has a projection towards north in the shape of an ayaka platform of a stupa. The projection is 2.80 mt. broad and 1.15 mt. long. The diameter of the circle is 7.65 mt. The cairn filling in the middle consisted of rubble and shale. A curvaceous alignment of boulder extends from southern end of the boulder circle which possibly encloses an adjacent platform.

BURIAL-4 is enclosed by a double circle of conglomerate boulders with an oblong cist in the middle. The southern orthostat, appearing like a head-stone, is higher than the other three.

BURIAL-5 is enclosed by a circle of 19 huge oblong boulders. In the middle of the circle is an oblong cist (1.80 x 1.10 mt.).

A port-hole is at the bottom of the southern orthostat opening on to a passage (1.10 x 60 cm.).

It is interesting to note that the megalithic burials at Gondimalla have architectural similarities with the Buddhist stupas. The circle of horizontally paved shale slabs around some of the cists is similar to the one found around the Buddhist stupa at Kesanapalli.²¹ The circular dry wall of horizontally piled-up shale slabs around the cist and vertically planted casing slab for the dry wall is another similarity. Thirdly the projections at the cardinal direction in the shape of an ayaka platform²² is another feature. The ayaka platforms at the 4 cardinal directions is a characteristic feature of Andhra stupas.

MUDUMALA: -(Pl 4. & lower portion)

A large number of stone circles, huge stone alignments were previously reported along the north bank of the Krishna from Thengady²³ near the Krishna-Bhima confluence to beyond Mudumula and Angunda. Numerous stone circles were noticed to the west of Thengady south of Gudabelur, one mile north of Muraridoddi. The surrounding area often associated with stone alignments measuring 14 to 16 ft. high and 8 to 11 feet in girth and there were 31 of them when Krishna Murthy visited.

Later Rama Krishna Rao²⁴ (1977) reported that at Mudumula in Maktal taluk of Mahboobnagar district, the alignments are

locally known as "Banthirallu" and "Nilurallu", which consist of blocks of stone of 14 to 16 feet in height without any marks of chisel or drill. They must have been quarried by means of fire setting. These huge blocks of stone are arranged in a diagonal fashion i.e. the stones of even numbered rows are set in the centre of the square. In other words, if a line is drawn from one row to another a beautiful criss-cross pattern is found. The even numbered rows seem to contain 6 stones while the odd numbered rows contain 7 stones. Many of these stones are not intact. There are altogether 7 rows in all, covering an approximate area of about 200 sq. ft. Many of the stone have tumbled down.

On the south-west of the village are found some rock bruising incised over huge boulders. These consist of a crudely carved humped bull with an upraised tail, a human figure possibly a female (mother goddess) with outstretched and upraised hands and out stretched legs. Another figure is a curvilinear trident over a circle. In another similar figure the side prongs are oblique and the middle one which is longer bisects the circle. In the third such figure the side prongs are oblique and the middle prong appears like a arrow-head and bisects the ovoid circle below.

CHAGATUR:-

About a kilometre west of the village of Chagatur, there is a cluster of megalithic port-holed cist burials with

passage chambers. Some of them have double circles of horizontally paved shale slabs. One of the recently excavated cist burials has a passage chamber to the south, and was divided into two compartments in the north-south axis. These compartments were further sub-divided by another set of partition walls. In the northern half of both the compartments human sized stone benches, supported by vertical slabs were installed. The cist and the passage chambers in other burials usually have a single port-hole but this particular burial has two port-holes in the southern slab, one at the upper level and the other at the lower corresponding to the height of the bench. Evidently, the stone benches were used for exposing the dead bodies until the flesh etc. was consumed by carrion eaters and natural agencies. This view is strengthened by the elaborate arrangement of the cist which has, besides, a usual slab circle, 100 x 100 ft. enclosure wall with a single entrance in the south wall. Similar feature was noticed at Valigonda²⁵ megalithic burials where a dry masonry enclosure (144 x 87 ft.) with a height of 2 ft. was noticed.

Prasad²⁶ (1978) reported that in all the four quadrants fragmentary skeletal remains and typical megalithic red ware sherds were collected. Besides, four huge vertical stones as memorial columns are noticed at the cardinal points. A very significant feature of this burial is a rock brusing over a shale slab depicting a standing human figure with hands raised in anjali and worshipping a pair of foot prints.

The dressed stone circle, stone columns at the cardinal points and the worship of the foot prints may have a bearing on the evolution of the Buddhist stupa.

PEDDAMARUR:-

Peddamarur²⁷ is a small village in the Kolhapur taluk of Mahboobnagar district and situated on the left bank of river Krishna. As the village and its surroundings come under submergence area of the Srisailam Hydro-Electric project, major excavations have been conducted in the financial year 1977-78. The habitation site of the early historic period, about 10 hectares in extent, lies on the south west of the village and roughly half kilometre away. Two groups of megalithic burials were also found at Peddamarur, the first one towards the north of the village about a kilo metre away and the second about 3 kilometres south-west of the village and near the river Krishna. Excavations were concentrated at the second group of the megalithic burials and at the habitation site.

HABITATION MOUND:-

But for a solitary potin coin of Satakarni III the excavation at the historical site has not yielded any datable object. For arriving at an absolute dating for the site we have solely to depend upon the pottery types, beads and other objects recovered from the excavation. No coins either the punch-marked or any other variety was attested to from the earlier levels.

Altogether six occupational levels were recorded of which the top two are marked by structural constructions with shale slab quarried locally. The above mentioned coin may help us to date the late levels to the Satavahana period. From the earliest occupation level upto the end of the fourth, no permanent structures were evidenced, but for post holes and paved floors. Yet, there was profuse occurrence of pottery and other cultural objects from all levels.

A comparatively study of the objects recovered from the historical sites and the megalithic burials, both about 3 km. apart may help us to discern the nature of habitation. Some of the pottery types from the habitation are exactly similar to those found in the megalithic burials. The black polished pottery which was very scanty but for few ear spools in the Satavahana period was ubiquitous both in the earlier habitation level as well in the megalithic burials. The allblack ware and black and red ware dishes some with typical ledged and out-turned lips, the coarse red hat-shaped lids are common. The barrel shaped hexagonal crystal beads are found both in the habitation and the burials. Similar beads were reported from Prakash²⁸ in the iron age context.

The carnelian etched spheroid beads, with circles and dots in the middle and the long barrel circular beads with chevrons in between concentric lines found in the earlier levels disappeared in the Satavahana levels. These types have been reported from Sanur²⁹, Maski³⁰, Sangenakallu³¹ and Porkalam³².

In the light of the above discussion it may now be possible to arrive at a reasonable time scale of the habitation site.

Period I represented by four occupational levels from the earliest to the end of fourth is co-eval with the megalithic cist burials. Period two overlapping the fourth upto the end of the sixth is coeval with the Satavahana period.

Six occupational levels were traced. Post-holes noticed in some trenches may indicate the nature of residential houses during the earliest habitation. The houses must have had mud walls covered by some thatched roof supported on wooden poles. The second level comprising of layers 7 and 6 was also marked by post holes. The flooring inside the houses, as in the earlier level appeared to be of rammed earth, a thin line of which was noticed. The third level was marked by floors paved with shale slabs and few hearths of burnt clay. A tan ware deep bowl was noticed in the vicinity of these hearths. In the second kitchen (B) a platform paved with shale slabs was found behind the hearth, possibly for keeping vessels after cooking. About a metre east of the hearth was a huge red ware storage jar, ^{but it} may break in course of usage, it was buried half into the ground. The flooring of the fourth level was rammed with small rubble and paved with shale slabs.

Level five contemporary with the Satavahana times, was marked by profuse usage of shale stone for construction. An

enclosure wall noticed in level V was laid directly over the ground without foundation.

The pottery from the megalithic levels included black polished dishes, tan-ware (dark brown) bowls some times decorated with concentric lines over the shoulder. The collection also includes hat shaped lids which have exact proto-types in Meg I and II. The pottery also consisted of red polished, black and red and black polished wares. There are also few sherds of buff-ware. The common types are vases with beaded and flanged rims, sometimes grooved at the top. Most of the deep bowls were red polished some have soot stains. Besides the black and red ware dishes, there are black polished and black and tan-ware dishes. Dark brown or tan-ware jars were common during the megalithic period. Another common type was a narrow necked vase with a flanged rim possibly used as a lota.

ANTIQUITIES:-

The collection of antiquities from the megalithic levels included beads of terracotta, horn, jasper, etched carnelian and shell. The terracotta beads are tabloid, sometimes decorated with concentric circles. Jasper beads are mainly spherical of dark-green and dark-brown hues. The etched carnelian and white painted beads were decorated with double rows of chevrons enclosed by double concentric lines on either side. There are also beads with circles and dots. Mention may be made of 3 types of quartz crystal beads - one truncated barrel with

hexagonal, the other is pyramidal hexagonal with a flat base and double vertical perforation at the base. The cutting of the second type of bead exactly resembles that of a diamond. The third type is simple spherical. There is also a solitary steatite tabloid bead. The above noted crystal and tabloid steatite beads are usually found in the chalcolithic levels as well.

Iron objects are very few which included an arrow head, a socketed spear-head, a sickle and a lamp.

MEGALITHIC BURIALS: -

Two groups of megalithic burials were discovered at Peddamarur. The first group is on the north of the village, about two kilometres away, lying by the side of a cart track leading to Chinnamma bavi village. The burials, all port-holed cists with passage chambers were erected over a high mound. Presently there are only six burials, the remaining being disturbed. The cists were constructed over made up mounds enclosed by circles of vertically planted slabs. The intervening space was reinforced by circular walls of dry masonry.

One port hole cist is exactly a square in plan and measured 2.45 x 2.45 metres. It has an oblong passage chamber (0.50 x 1.75 metres) towards south. The diametre of the enclosing circle is 8 mt. The space between the cist chamber and the circle measures 2.85 mt.

GROUP-II:

About 3 km. south-east of the village and one km. north of the river Krishna, lies the second group of megalithic burials over a rocky mound scattered thickly with haematitic quartzite rubble. Presently there are 38 burials, most of them being multiple chambered cists, of which 20 are squarish or rectangular, 15 are oblong single chambered and 3 pit circles. Out of this group four burials were excavated.

MEG I:

This is a triple chambered cist burial of shale slabs, with a port hole (0.63 metres) in the southern wall slab opening into an oblong passage chamber towards south (1.70×1.30 metres). No capstone is noticed. The cist has a circle of horizontally placed slabs of large and medium sizes. The outer edges of the slabs were dressed in a semi-circular shape. The intervening space and the cist were filled-up with shale slab.

As already noted the cist was transepted into three chambers in the north-south orientation, the central chamber being bigger, the two chambers on either side have similar measurement with port holes for each chamber at the floor level so that there is access from chamber to chamber.

Chamber I measuring 2.35×0.66 metres was closely packed with small shale slabs, haematitic quartizite pieces and red clay upto a depth of 36 cm. Smaller shale chips and

rubble were used down to the level of funerary deposits. The pottery and skeletal remains were badly crushed due to the heavy weight of the filling. No skull is noticed but for a few charred bones inside urns. The pottery consisted of coarse red jars, some times incised with oblique strokes. There are more than 40 pots of black and red, all black, red and coarse red. The types included hat shaped lids of coarse red-ware, vases of black ware and red ware with thickened and out-turned rims. Some of these black ware pots have thickened rims and have four perforations above the shoulder on the four sides.

Some red ware pots were decorated with double rows of pinched design and oblique incisions below concentric bands. There is also an all black ware miniature bowl with concave body and sharp carination at the waist tending to the sagger base. The hat shaped lids sometimes have thickened and flanged rims and sometimes rolled and slightly out-turned. Another interesting feature is the occurrence of black ware funnel shaped lids, some times with a ledged rim and having a knobbed terminal at the top.

Iron objects are scanty but for a small knife in the shape of sickle which is still in vogue as used by shepherds for cutting small twigs. The other object is an iron ring of blade with ends bent forward to overlap in the shape of a spiral.

There are two beads of quartz crystal, one big and other small, both barrel shaped, truncated and hexagonal in cross section. Similar beads were reported in Prakash excavations in iron age context.

In chamber II, a terracotta sarcophagus was noticed adjacent to the eastern wall, a big fragment of which was lying near the western wall. Inside the sarcophagus only few splinters of bones were noticed. The pottery consisted of hat shaped lids, all black ware dishes and red ware vases etc. Some of the red ware pots contained charred bones which included fragments of calcined skull bones.

There are more than 25 pots inside the chamber, which included a red and black ware deep bowl, red at the top and black below. It appears the bowl was straight fired by piling up bowls one over the other.

In chambers I and II after removing the contents the floor slab was also removed. In the middle of the chambers it was noticed that small pits were scooped into the bed rock for depositing funerary vases, some of them containing human bones. The pottery included squatish all black ware ring stands, a red ware pot with elongated neck and tapering body, another small black ware pot, a black and red ware dish and a black ware pot in the shape of a bottle gourd. In order to keep the contents intact the gaps between the pots inside the pit were plugged with fine earth. The base of the floor slab was also

rammed with fine earth ~~that~~ that it would not exert pressure over the contents of the pit underneath.

In chamber III the funerary deposits were noticed at a depth of 1.33 metres, consisting of a large number pots and human bones, most of them being unidentifiable as much crushed due to the weight of top filling. The pottery consisted of red ware, black and red ware, and coarse red ware. Some of the pots were placed over the human bones.

MEG II:

This is an intact burial of shale slabs erected in an anti-clock wise Swastika pattern, with a port hole in the south wall leading to a passage chamber. The port hole is 44 cm. in diameter, carved exactly in the middle of the southern wall slab and slightly above the floor for enabling free access to both the compartments. The door slab of the port hole滑ided down and found in the middle of the passage chamber.

The cist was divided into two compartments by a low partition slab of 20 cm. high which was tightly inserted in between the floor slabs of the two compartments. Besides some crushed skulls, bones and pottery, there was also a sarcophagus of terracotta which has six legs in two rows and decorated with an applique band of finger impressions below the rim.

The rim of the sarcophagus was luted with a terracotta figurine of possibly a buffalo, with a single sturdy horn with a backward sweep, as it was intended to be luted at the place of the secondhorn. The head is slightly turned aside. The sarcophagus was covered with a convex lid now crushed and contained a few human bones in a very fragile condition thickly embedded inside red clay.(Pl 4-c)

In the same chamber one crushed skull was placed near the port hole slightly tilted towards west. A few long bones were found towards north of the skull. A second fragmentary skull was further north with longer bones in the north-south orientation. A maxilla with damaged teeth was found at some distance from the skull. Two iron rings constituted the other finds closely towards south of sarcophagus, about 15 cm. away; fragments of a third skull with some longer bones were placed in the north-south direction. A fourth skull along with few crushed bones was at the south-east corner of the cist with an iron spatula closeby. An iron cable type nail riveted to a copper ring was found in between the sarcophagus and the partition slab. Most of the bigger pots with lids were placed adjacent to the walls and smaller ones near the bones. A carinated red ware pot with lid was at the north-east corner. It may be noted that at every corner of the cist pots were deposited possibly as offerings to the gods presiding over the quarters.

It appears, the cist was re-used for a number of times. Initially a soft bed of earth was spread over the floor slab to a thickness of 5 to 6 cm. then the skeletal remains and offerings were deposited. Another bed of earth covered the earlier remains for interring a second set of human relics. After the entire space inside the cist was filled up the port hole was opened again and without entering into, one more skull with few collected bones were deposited near the port-hole from outside. Even the cist chamber sometimes was used for interring the remains.

CHAMBER III:

The western chamber contained a single skull seperately interred with three longer bones and two terracotta sarcophagi besides an array of pottery. A red ware sarcophagus placed at the south-west of the cist is petogonal in cross section and truncated-barrel-shaped. It was hand-made and tapers at both ends. A squarish door (20 x 17 cm.) is slightly above the base and has a door slab, lying outside. The exterior of the sarcophagus was finely polished. It contained a few fragments of charred skull bones in association with other crushed bones over a bed of red clay.

The second sarcophagus 61 x 40 cm. is fusiform and pointed at both the ends which has a door in the middle with a closing slab now lying crushed inside with the fragments of the sarcophagus and the bones. It was decorated with double rows of



multiple concentric lines at both the tapering ends. It contained a few fragmentary bones and a crushed skull possibly pertaining to a child.

MEG LIII:

This is a single chambered cist burial (2.30×1.85 metres), lying to the north-east of the cemetery. It is Swastika in plan, with a passage towards south and has a circle of horizontally placed slabs. The passage (1.30×1.05 mt.) is slightly towards east of the middle. A port-hole 44 cm. in diameter, is in the middle of the southern wall with a door slab (60×70 cm.) The cist was securely sealed with small rubble and shale to a depth of 1.20 mt. whereof the skeletal remains were noticed. No floor slab was provided, the skeletal remains being deposited directly over the bed rock spread with a thin bed of ashy silt. In all 8 skulls were found at various places inside the cist on the same level. Three skulls were close by the port hole and no single skull was intact. At times the occipital bones were dislodged and some times crushed down into the mandible. The general pattern of arrangement consisted of a skull with few longer bones on either side and miniature pots nearby. All the bigger pots were placed adjacent to the walls.

After the entire space inside the main cist was filled with several funerary deposits the passage chamber was utilised for a 9th deposit consisting of a skull, long bones and pottery.

Apart from the commonly occurring iron objects such as chisel and knives etc. one triangular blade of iron which was possibly used as an arrow-head is quite interesting.

MEG IV:

This is a pit burial with a passage to the south and enclosed by a double circle of disintegrated shale rock. The oblong passage chamber (1.87 x 0.53 mt.) of shale slabs has a door slab on the north now滑ided down into the pit. The skeletal remains were noticed at a depth of 1.80 mt. lying over shale bed rock. The skull was placed towards north of the pit lying on the left side and facing east. The mandible was dislodged. The other bones such as femur, tibia, radius, ulna and ribs and a part of the pelvic were much crushed. The size of the longer bones indicate a tall person. The leg bones were placed one over the other and the hand bones, the radius and ulna, were on the right of the skull.

In many aspects the burial is unique. The skeletal remains were interred in a pit, rather than a cist, but with a passage chamber towards south. A door was provided on the north of the passage which usually serves as door slab to the port-hole of a cist burial. Instead of lining the pit with slabs to build a cist it was lined with calcrete boulders. The other variation was the presence of a double circle of boulders instead of a circle of horizontally placed slabs. Pottery was also very scanty but for a much damaged black miniature pot. In view of this, it is likely that burial may be the arch-type of cist burials with passages.

JONNAVADA:

A very interesting Megalithic site situated near Jonnavada³³, on the left bank of river Pennar, in Kovur taluk in Nellore district, was excavated by the Department of Archaeology. The site lies in between the village and a low hillock standing on a jeepable road leading to the village. The burials are covered by wind blown river sand to a thickness of 10 cm. to 1 mt. Below this is a deposit of morrum covering the bedrock composed of soft laterite. The burials were carved into the bed rock in the shape of a jar with an elongated narrow neck, bulbous body and a flat base. The vertical section appears like an inverted funnel. At the base of the cutting a sarcophagus was placed invariably in the eastern side of the chamber. Even among the disturbed burials the position of sarcophagus could be located from the shallow cutting made for placing the sarcophagus on the eastern side of the floor, the adjacent wall of the chamber to the sarcophagus was also scooped in an oblong oval shape so that the sarcophagus can rest firmly on its base.

There might have been other structural appendages like a stone circle, cap-stone and cairn packing. But it is learnt that the villagers have removed the stones and carried away.

BURIAL No. 1:

The Burial was excavated into the lateritic bedrock with a diameter of 80 cm. at the neck. The lower edge of the neck where the shoulder takes a wider curve having diameter of 90 cm.

The total length of the neck is 60 cm. The chamber was cut deeper towards eastern side where a sarcophagus consisting of beads was placed. The other funerary assemblage consisted of bowls of black and black and red wares with funnel shaped lids of black ware, big red ware vessels etc. Neither iron objects nor skeletal remains were noticed. This appears to be a post-cremation burial.

BURIAL No. 2:

This burial lying exactly south of the Burial No.1 was dug-out by the villagers. Fragments of a sarcophagus and an iron arrow-head came to light during the excavations. The diameter of the neck is 60 cm. and that of the body is 180 cm.

BURIAL No. 3:

This was also disturbed by the villagers leaving only fragments of sarcophagus, an arrow-head and human teeth. The neck of the burial was very narrow with a diameter of 45 cm. and a total depth of 90 cm.

Similar rockcut tombs were noticed in Kerala. The rock-cut-tombs at Channapparambu³⁴ near Feroke Railway Station had stone circles, none of which however was to be seen. Each cave tomb had top opening big enough for an adult to lower himself into the cave and the top holes were covered on the surface with a granite square slab. The top hole in the form of a hollow cylinder superposed itself on the hollow half sphere which constituted the cave proper. As in the case of Jonnavada burial

the floor was also circular and the walls arched up to the top opening to form a domed vault. Another cave tomb near Peruke Rly. station had a small rectangular entrance on the north-east, leading on to a rectangular pit also cut into the rock but open to the sky and provided with a flight of 3 steps.

The tombs at Jonnawada yielded iron tripod stand, a trisula and lamp. The tombs at Parambankali³⁵ also in Kerala yielded similar iron trident, tripods, daggers and some objects with forked edges.

TENNERU:³⁶

Tenneru situated 23 km. east of Vijayawada is connected by Vijayawada-Machilipatnam Railway line. On the east of the village there is a megalithic site in which legged sarcophagus urn-burials were seen side by side. In all the cases north-south orientation was noticed. Most of the adult burials were noticed in earthen ware sarcophagi having 8 to 12 perforated legs.

Most of the tubs are in matt red ware. The entire body of the tub was hand made. In some cases there are decorations of rope design on the exterior of the earthen ware tub and two perforation in the front side.

The excavation of the burials at Tenneru brought to light a new aspect in the method of disposal of the dead. It appears that a regular potter's industry making these earthen ware tubs was in vogue. This was substantiated by the presence of standard

size of tubs made in two halves. In case of shortage of a suitable size for an abnormally tall adult, a gap is seen at the centre which is plugged by placing pot sherds. The custom of depositing pottery such as lid-cum-bowls and tumbler jars inside the tube is also common. The largest earthen ware tub measured 6'-3" x 1'-8" x 1'-8" having 12 perforated stands and contained the skeleton of an adult in complete articulation. The associated finds consisted of knives, blades, two beads of carnelian besides a bunch of shell beads.

AGIRIPALLI:-

Agiripalli a famous pilgrim centre in the Nuzvid taluk of Krishna district is about 30 km. from Vijayawada. The village nestles on the south of the hill, Sobhanagiri. At the top of the hill is the famous temple dedicated to Laxminarasimha. Flight of steps are provided up to the top of the hill.

The Sobhanagiri with an approximate height of 600 ft. is of the khondalite rock group. On the western foot of the hill is an extensive cist burial complex. Most of the burials are devoid of boulder circles. Presently the burials can only be located by the cairn packing found hither and thither. Many burials have been dug out by the villagers for finding-out allegedly hidden treasures.

The entire area is deeply cut by the several nullahs emanating from the hill, exposing a few of the burials. In many burials even traces of boulder circles are absent. It is likely

that the burials never had boulder circles due to non-availability of granite or such rock, in the vicinity.

The burial site is covered by rubble and red soil but the lower reaches of the hill and the extensive plains have deposit of red-alluvium to a thickness of 3 to 4 mt.

BURIALS:-

The cairn packing is visible in many burials which kept most of the burials intact. Three types of burials are noticed in the group.

- 1) Cist 2) Sarcophagus 3) Urn

All the burials so far excavated are secondary in nature and many are of post-crematory in nature. Few splinters of calcined bones are found in many cists. The pottery is not prolific. Iron is also scarce.

CIST I:-

It is situated about 50 mt. from the foot of the hill and oriented in the north-south direction. There was a cairn packing to a height of 15 cm. around the cist. The longer orthostats of granite measured 1.60 mt. Neither port-holes nor cap stones were noticed. The smaller orthostate on the north and south are just kept to plug the gap between the longer ones. They were thin and crumbled. The space inside the cist measured 76 cm. broad. The slabs were arranged so that the tops slightly tilt inwards to avoid falling back. The crevices at the floor level were plugged with rubble. The total height of the longer

orthostat (north-south) is 1.15 mt. The floor slab, also granite, was broken due to pressure of weight from above.

On the north-east, outside the cist a red ware globular pot was placed. Inside, at the south-west corner was one more globular vase of red ware. Adjoining it was a small pot and a dish.

In the middle of the cist near the western orthostat is a small pot with straight sides and carinated at the base. It has a thin red slip and burnished surface. There is a finger impressed design between two concentric bands over the shoulder. The pot consisted of red soil and few calcined bones at the bottom. Nearby, were four miniature pots, three of them are red ware, made on slow wheel, with thickened and everted rims. The fourth one is a black and red ware miniature pot with nail-headed rim. Also there are two lids, one bigger with a deeply grooved rim and the second one with an internally thickened rim.

There is a solitary iron find of doubtful shape appearing like a lamp much corroded and disintegrated.

CIST-II:-

While excavating Cist-I, another cist was noticed at a distance of 1.60 mts. away towards the west, and at its floor level tightly capped by four rectangular granite slabs. The longer orthostat^s measured 1.45 mt. The northern orthostat^s, longest of all, stands to a height of 1.45 mt. possibly to serve as a head stone.

The cist contained four skulls, two placed lying one over the other and adjacent to the western wall. Two other skulls were near the eastern slab. In between these two pairs were the longer bones such as femur, tibia and fibula. Another set of bones were found underneath the second pair of skulls.

In the ceramic assemblage was a red ware pot about 10 cm. in height with a thickened and slightly everted rim, with a thin pale red slip. The other is an ill-fired black and red ware bowl with a featureless rim. The shining burnished surface is crackled. The collection also included a lid-cum-bowl of pale red ware. No iron object was noticed.

CIST-III:-

The longer orthostats of this cist measured 3.20 mt. long and 1.50 mt. high. As in the other cist, the slabs were arranged to tilt inside at the top. The northern orthostat was very small (0.55 mt. broad and 1.50 mt. high) now broken into fragments. The floor slab was intact.

The contents of the cist were two black-and red ware globular pots with narrow bottle-necks and nail headed rims. There was also a black and red ware deep bowl with a featureless rim. The burnished shining surface is crackled. There were three other red ware carinated vases of similar shape with flanged rims. Close by are three red ware lids with grooved rims. But for a few calcined bones and the above pottery no other find was noticed.

SARCOPHAGUS(A):-

While exposing the south-west quadrant of cist-I about 4 mt. west of it, a terracotta sarcophagus was exposed at a depth of 10 cm. It has 6 legs and is much crushed and oriented in the north-south direction. It measured 1.37 mt. long 0.46 mt. broad, 0.47 mt. high including legs. The thickened rim was decorated with thumb impressions. The sarcophagus was narrow at the rim and broader at the base. The contents were a few calcined bones, cemented under a compact red soil. No metal object were found.

SARCOPHAGUS(B):-

This is found to the north-east of Cist-I at a depth of 0.15 mt. from the surface. It is well burnt and has six legs. The thickness of the fabric varied between 1 1/2 to 3 cm. It measured 1.12 mt. long and 0.46 mt. broad inside and 0.60 mt. high, and consisted of two black and red ware pots of medium size with narrow bottle necks and flared out thickened rims. The third pot is a red ware straight sided beaker with a featureless rim. A few splinters of calcined bones were found towards the northern side. No metal object was noticed.

URN BURIALS:-

At a distance of 3.50 mt. from the Sarcophagus(B) towards west, 2 urns were exposed at a depth of 0.40 mt. The two urns were planted side by side. Urn (A) is a red ware jar with globular body, rounded base and slightly everted rim. It has a thin red wash and decorated with concentric bands. At the bottom of the pot are a few calcined bones.

URN(B):-

The 2nd Urn is almost similar in shape and colour as Urn (A). The rim is damaged and missing. But for a few bone fragments no other object was found.

It is interesting to notice the various burial practices at one place, such as stone cist, terracotta sarcophagus and urn burials. Both cremation and excarnation were practiced but stratigraphically excarnation was earlier. But for the cairn packing no boulder circles were present. Granite is not available in the vicinity and the slabs used for erection of the cists must have been carted from a considerable distance. This may also explain the absence of boulder circles.

MUKTYALA:-

It is a prominent Zamindari village in the Nandigama taluk of Krishna District. About 2 km. from Muktyala³³, there is a dilapidated village by name Bhogalapadu near the Krishna river with an extensive historical mound close by. The mound was flooded by the river many times in the past. About 1 km. towards north of Bhogalapadu and adjacent to the Jaggayyapet-Muktyala road, there is a rocky knoll studded with a large number of megalithic cist burials with passage chambers. The mound is locally known as Virulabodu (mound of heroes) and the burials are known as the temples of "Rakasis".

Out of curiosity, Veturi Sankar Sastry dug out two of the cist burials. One cist had a port-hole leading to a passage

chamber. The passage chamber consisted of skeletal remains of a horse and the main chamber, of human bones. It appears the mandible with teeth and vertebral column of the horse were intact. The bones were identified by V.Ramachandra Rao, Prof. of Anatomy, Guntur medical College. Interestingly there is an illegible brahmi inscription above the port hole. The letters are considerably big and probably read as "LOGWISNI". There is also one more letter below, which was identified as 'JA'.

In the proximity of the burial, there is a figure of a galloping horse bruised over a whitish shale slab.

HASHMATPET:

The megalithic burials at Hashmatpet about 8 km. from Hyderabad have been first noticed by Dr. Walker and reported by Meadows Taylor³⁹. During the 19th century, Bell and Captain Doria as reported by Taylor opened two tombs and found chains of iron and a bell of brass with iron tongue. In the year 1935 excavation of two more burials was undertaken under the supervision of D.G.Mackenzie. The bigger circle was 25 ft. in diameter having 24 boulders. The orthostats were 10 ft. long and 7 ft. broad and 4 in thick. The floor slab was found at a depth of 7 ft. below the surface. Pottery and iron implements were placed inside and also outside the cist, with the smaller vessels inside and the larger ones outside. The smaller vessels consisted of bowls, dishes and small pots mostly of the highly polished black-and red variety. The iron implements included

knife or dagger, sickle, ring of an axe and the prong of a hayfork (flail) or ploughing implement. Three bronze ferrules of walking-stick-like objects were also found. Fragments of human skulls, four teeth of a middle aged man and leg bones of a calf were found in a highly disintegrated condition.

Again in 1971 N.L.Nigam⁴⁰ has excavated 2 more burials. One of them being completely disturbed yielded some stray pieces of broken pottery of red ware and an iron piece. The second burial which is a cairn pit circle had a double circle of 22 boulders in the outer and 20 in the inner. The diameter of the outer-circle is 10 mt. and that of the inner is 8 mt. The burial pit measures 4.20 x 3.25 mt. its orientation being north-south. The pottery consisted of black and red, polished black, bright red and dull red wares. The chief types are the funnel shaped lids, bowls, dishes, pots with sagger base and ring stands etc. The iron objects recovered were "beautiful" sickle and an iron stirrup.

MOULA ALI:

At Moula Ali⁴¹ 4 to 5 miles north-east of Secunderabad, was found a very extensive field of cairn circles and dolmenoid cists occurring in groups. One such group, the northern one, extended over 30 to 40 acres of land. The excavations were confined to this region. The circles varied in diameter from 2.40 to 10 mt. with the cairn heap rising to a height of 0.60 to 1.20 mt. above surface. The boulders of the circles

were roughly dressed and in most of the examples there were 24 boulders. In the case of circles, too small to have 24 boulders, the excess ones were deposited inside the circles. Loose earth and stones filled up the interior of the circle upto the level of the capstone which occurred generally at a depth of 1 to 1 1/2 mt. No pottery and other antiquities occurred above the capstone except in one case, where a number of 'surehis' or water jugs, small pots, bowls and dishes and an iron ring of a hatchet occurred in the loose filling above the capstone. The water jugs were all of black polished ware, closely resembling their modern counterparts.

The cists had four orthostats, one floor slab and a capstone of a greenish trap rock. The orthostats projected on both ends and the end slabs were placed between the side slabs, which varied in dimension from 2 to 3 mt. long by 1.60 to 2.20 mt. broad. The internal measurements of the cists ranged from 2 to 1 mt. long x 1.20 to 0.60 mt. broad and 3 mt. to 1.20 mt. deep, oriented north-south often with a slight inclination towards east-west. At the floor level 2.40 to 3 mt. below surface, in the pit but outside the cist, were placed large and small pots including ring stands, bowls, dishes, platters, and incense-burners or chalices, identical with similar vessels from the burials in otherparts of South India. The largest pots were 1.70 mt. in diameter, 0.85 mt. in height, while the smallest were only a few inches in circumference. The rims were either plain or decorated with various designs and most of the small



vessels were black and red in colour and were well polished. The pottery was arranged sometimes in groups or in rows of single pots. The smaller vessels like bowls, dishes and vases were sometimes deposited inside the cists. The excavators felt that the cists were filled internally with a fine soft earth, often not available in the locality. Yazdani felt that its occurrence was due to percolation and its mixing up with the contents was responsible, in many cases, for their disintegration.

The iron objects consisted of knives, daggers, hatchets, axes, spears, links of a chain and a lamp supported on three bars. These were generally placed near the right hand of the corpse. Hatchets occurred usually outside the cist on the left or near the head slab. A copper or bronze bell occurred inside another cist, which also yielded an iron lamp with legs. Similar bell had been found earlier at Moula Ali, Narkatpalli, Kunnattur and many other sites.

The burials, according to Yazdani, belong to various periods. The largest ones were the oldest, where the skeletons were more disintegrated though their outlines could be traced out. The corpses were laid in contracted position. The height of the bodies ranged from 1.60 to 1.50 ft. One of the smaller burials contained a comparatively better preserved skeleton.

JANAMPET:

At Janampet⁴², some 20 miles south-east of Mungapet, in Burgampahad taluk of Khammam district, existed an extensive burial ground extending over several miles and locally known as the

burial ground of 'Rakshases'. The burials occurred from the forest to the summit of the neighbouring hillock, characterised by great circles of stones, with the central uprights or the orthostats supporting the enormous capstones. This site was in the same general locality as that from which William King and Mulheran studied the dolmenoid cist tombs associated with cruciform monoliths but it was a separate group a few miles away from the Kaperlaguru group. No crosses were present in this group. But at some distance away from the burials were two wedge-shaped pillars of stone with rounded projections like a human head placed above the shoulders, planted side by side. The larger one had a pointed bottom 2.10 mt. in tall 0.90 in broad at the shoulders and 0.40 mt. at the head and 0.25 mt. from shoulder to top of the head. One of them, the shorter one, had two concentric circles placed side by side, being 0.15 mt. from centre of the one to the other, resembling the female breasts. Thus, the two pillars represented the effigies of a man and a woman.

One of the circles, 10 mt. in diameter, was excavated. In its centre was an oblong cist, 1.20 mt. high, covered by a capstone some 1.50 mt. x 2.35 mt. and 0.60 mt. thick. The cist was filled with earth and some 0.40 mt. below the top of the cist was found an oblong stone sarcophagus chiselled out of solid rock and placed on the floor slab of the cist. The cist and the sarcophagus were both oriented north-south. The sarcophagus, placed by the side of the eastern orthostat,

contained two iron objects. Outside the sarcophagus in the cist occurred the remains of a monkey and a mongoose along with some pot sherds.

DONGATOGU:

At Dongatogu⁴³ 7 miles west of Janampet, was located an extensive cemetery with more than 1500 dolmenoid cists, out of which one was excavated. The stone circle had a diameter of 11 mt. in the midst of the cairn filling was a cist, having 11 orthostatic slabs, three each on the east, south and west and two on the north, supporting a massive capstone, 3.60 mt. by 2.50 mt. with thickness of 0.50 mt. It did not contain a sarcophagus but on the floor of the cist were found iron objects and pottery pieces.

The above burials appeared to be family vaults, as some of them contained more than one sarcophagus, some of them being smaller, probably meant for children or members of lesser status. They were generally constructed of the local coarse sandstone slabs often embedded with pebbles. The iron objects included stirrups and hoes, spears, some 0.90 mt. long and knife blades. The pottery was of a bright red colour. The bounding circles, with the boulders dressed sometimes into an arc were perfectly circular.

POLICHETTICHERU GUDDA:

Further excavation was conducted by Khaja Md. Ahmed⁴⁴ in the year 1940-41 at Polichetticherugudda. Cromlech A,

situated at the highest point of the hill has got a ring of stones around it measuring 10.50 mt. in diameter. The cromlech is in the middle of the ring, the capstone slab measured 3 and 2 mt. with a thickness of 0.45 mt. The slab rests upon 12 smaller slabs 4 each on the western and eastern sides and 2 each on the northern and southern sides. The upper slab was carefully removed but neither antiquities nor skeletal remains were found in it.

In cromlech B, the capstone slab was supported by 10 smaller slabs. The inside of the cromlech was filled with soft sand and it contained no sarcophagus. The bottom slab was exposed which measured 2.40 mt. north-south and 1.10 mt. east-west and 0.42 mt. in thickness. On the north eastern side the slab was rounded. The finds in the grave consisted of iron objects like stirrups, hoes and spear and a gold ring. The pottery was of light red colour.

The architecture of these graves is plain and simple. They consist of a small chamber looking like a table raised above the ground. The table top is invariably a monolithic slab of varying dimensions, the greatest length, width and thickness of the slab being 3.60 x 2.40 x .90 mt. The slab is supported and held above the ground by smaller slabs (0.60 x 0.60 x 0.30 mt.) which generally vary in number, the maximum number being twelve and the minimum being four. The chamber has been constructed on a sheet of rock and where it is not available, a slab of rock

equal to the size of the interior of the chamber has been fitted in. The thickness of one bottom slab is 0.45 mt.

Majority of the chambers have got a ring of stones around them which has got a diameter even of thirty five feet. The stones of the rings have been in some cases dressed into the shape of an arc so skilfully that they form a complete circle. The area between the chamber and the ring in some cases slopes towards the ring and is paved with rubble. This was done probably for draining away rain water from the chamber.

Explorations in the Karimpur Region:

VALIGUNDA:

At Valigunda⁴⁵ on the left bank of the Musi river, 14 miles from Bhongir on the Nalgonda road to the west of the granite hill, occurred about 500 cairns over an extensive area. These circles sometimes had cairn heaps. They had an average diameter of about 11 metres. Two of the cairn circles had a menhir north of them, about 2 mt. tall from the ground. There was a rectangular dry masonry enclosure 48 mt. north-south by 26 mt. east-west with a height of 0.60 mt. At the middle of the southern wall, occurred a semi-circular structure about 3 mt. in radius and divided into two equal halves by an east-west wall. A menhir, 3.20 mt. high stood in the centre of the northern compartment. This curious construction was a new feature not observed in other sites of this region. Yazdani reported extensive megalithic sites from this region also.

SINGAPUR:

Singapur⁴⁶ is situated at a distance of 6 km. from Huzurabad a taluk headquarters in Karimnagar district. The megalithic site lies at the foot of the hillock, abutting a huge tank. There were at about 50 stone circles found in groups of small and large circles by the road side. The number of stones in the circles varies from 10 to 20 and many stones were missing. Invariably there is a cist in each circle but not a single cap stone is left. Some of the side slabs of the cists show above ground and others are flush with the surface. The internal diameter varies from 4.50 to 7.00 mt. One of the burials had 16 boulders in the circle with an inner diameter of 7 mt. In average each boulder measured 1.50 x 0.90 mt. In a few pit circles cap stones are visible. On the surface a few shards of black and red ware could be picked.

The orientation of the cist is peculiar as its long axis was seen to be placed east and west instead of north and south. The circle round a cist was formed of 19 big boulders, its outer diameter 8.22 mt. and inner 7.30 mt. The cist was opened which consisted of hard soil at the top and the below was soft earth or silt. Next came sandy soil to a depth of 1.20 mt. and below that was found clay like earth. Potsherds were found at varying depths. Near the eastern end of the cist two big pots had been placed which were totally crushed. The other finds included a bone fragment and a piece of iron appearing like a spear or arrow-head.

KOLAKONDA:-

Kolakonda possibly a shortened form of Kolanukonda derived from the Ramaswamudram tank abutting a range of hills. A megalithic burial complex consisting of more than 200 graves lies in an area of one square kilometer near the hill, Peddagutta. The entire area marked by mango groves and other fruit bearing trees, is now under cultivation.

The boulders encircling the burials must have been brought from the neighbouring hill lying at a distance of 100 mt. They consist of 17 to 21 lateritic boulders with diameters ranging from 7 to 9 mt. Many are disturbed by removing the boulder stones and planting them as demarcating lines between the fields. Most of them are pit circles, but there are a few cist burials with damaged slabs. On the surface a few sherds of Black and Red ware dug out from the burial could be collected.

The early historical site coeval with the megalithic period at Kolakonda covers an area of 50 hectares and lies over a sloping plain between the Chinnagutta and a rivulet, a tributary of the river Maneru. The surface collection included Black and Red; Red; Dull Red and Black wares, besides a few neolithic celts. The entire mound covered by black alluvial clay with a profuse admixture of ash, is now almost dug up and carried away by the villagers to manure the fields.

POLAKONDA:-

Polakonda in the Jangoan taluk of Warangal district can be approached from Mondrai, a small village on the road from

Jangoan to Suryapet. Polakonda, about 14 kms from Mondrai, is a small hamlet under the revenue jurisdiction of Ramavaram.

GROUP-A:-

A huge megalithic complex consisting of 60 to 70 burials is located on the south-east of the tank. Most of the burials are cairn circles with or without cap stone. A few burials have double circles of boulders. Five burials out of the above complex were measured to get an idea of their dimensions.

MEGALITH-I:-

It has a double circle of boulders, 32 in the inner and 36 in the outer; the inner diameter measured 13 mts

MEGALITH-II:-

It consisted of a single circle of 26 huge boulders and was provided with a cap stone measuring 2.70 x 1.70 mt.

MEGALITH-III:-

It has a single circle of 14 boulders having an inner diameter of 4.40 mt.

MEGALITH-IV:-

It has 26 boulders in the inner circle and 30 boulders in the outer circle and has a cap stone measuring 3.30 x 0.60 mt.

MEGALITH-V:-

It has 12 boulders measuring 5.60 mt. in diameter. A cap stone was provided but it is now disturbed.

GROUP-B:-

At the south face of the Peddagutta hill and about 200 mt. away is a sprawling megalithic cist burial complex. There are more than 100 burials, most of them are bereft of boulder circles. The orthostats of many burials are missing but a few burials still preserve their identity jutting out of the sandy soil.

The orthostats were cut-out of white granite brought from the Peddagutta hill. The longer orthostats of one of the burials measured 2.60 mt. and the shorter 0.55 mt. The lengthwise space inside the cist is 1.70 mt. The slabs are 10 cm. thick. The cist is oriented, north-south.

Another cist situated on the bank of a nullah was recently opened by the villagers and the pottery thrown out. The collection included some miniature vases with elongated necks and slightly everted rim, a dull red ware lid-on-bowl and a few sherds of a black polished ring stand.

BUDIGAPALLI:-

It is a small village about 6 km. from Huzurabad. The village is surrounded by ring of hills locally known as Valasagattu, Sanjivarayanigattu and Venkayagattu. At the base of Sanjivarayanigattu is a huge megalithic burial complex, all cist burials, most of them damaged. One of the burials is encircled by 16 boulders. The cist inside the circle is in the shape of a Svastika, and measured 1.70 mt. long 75 cm. broad.

Another burial has a circle of 24 boulders. A third burial with a rectangular cist in the middle was enclosed by 12 boulders. The cist was packed with cairn. Burial No.4 was enclosed by 22 boulders and the cist was 2 1/2 mt. high above the surface.

The biggest circle of the complex consisted of 34 boulders with inner diameter of 14 mt. The burial pit was covered with a capstone of squarish granite slab measuring 2.70 x 3 metres and with a thickness of 20 cm. The capstone was broken.

The cist complex at the foot of Sanjivarayanigattu consisted of more than 50 burials. In between Valasagattu and Sanjivarayanigattu a huge bund was constructed to collect rain water from the hills, thereby a deep tank known as Kalkicheruvu had formed. Apparently this tank must have been constructed during megalithic period itself.

About a mile away from the burial complex towards north is a tank in the vicinity of a village known as Regonda. On the western bank of the Regonda tank and inside the fields many ancient iron working spots were noticed. Iron slag was scattered all over the fields. I was told that iron ore was mined from the slopes of Valasagattu.

Adjacent to Valasagattu is a historical mound enclosed by a mud rampart with an existing height of 10 mt. above the surface. Surface exploration revealed matt red were conical bowls, deep bowls of well ^elaminated clay, sherds of chocolate

ware (^{deep} brown), highly polished-black ware, black and red ware etc. Some of the potsherds had nail tip and floral designs. I examined two deep rain gullies. At the lower levels I collected a broken mace head with diameter of 10 cm. and two neolithic stone axes. The total thickness of the cultural deposit ranged between 2 and 2.50 mt.

CHINNA TORUHU:-

It is situated 7 km. from the Palakurthi village in Jangoan taluk of Warangal district. There is a large megalithic complex consisting of 40 to 50 burials lying on the road side and over the southern slopes of a huge tank. There is a hillock known as Bodagutta about a furlong south of the megalithic complex. Most of the burials are cists of granitic slabs. Some of the orthostats of the cists are projecting outside the land surface due to erosion of the soil which slopes into the tank.

BONMERA:-

Bonmerra a small village in Jangoan taluk of Warangal district is considered to be the birth place of the celebrated Telugu lyric poet, Bonmerra Pothans, who wrote the Telugu version of Bhagavatham.

To the east of the village is a megalithic cist complex. Most of the boulder circles were removed by the villagers, only a few orthostats are visible projecting outside. I was informed by the villagers that the famous poet lived in the

vicinity of the burial site. The seat shown to me by a villager where Pothana is believed to have composed his verses appears to be a megalithic cist rearranged like a seat.

RAMUNIPATLA:

The village Ramunipatla⁴⁷ is 8 km. away from Siddipet in Medak district. Towards south of the village and half km. away there is a megalithic burial complex which consisted of 50 burials of pit circle type having single and double boulder circles. The complex lies on the southern slopes of the hill. Due to active cultivation the boulder circles were mostly removed. The total area of the complex is approximately two hectares. One of the burials which is intact had a single circle of 15 boulders with an internal diameter of 4.56 mt. and an external diameter measuring 6.40 mt. Just 9 mt. away from the above ^{burial} meg. is another pit circle with an internal diameter of 3.30 mt. and an external diameter of 4.35 mt. The average height of each boulder is 40 cm. and 1.50 mt. wide. There are 12 boulders in all. The other structural appendages such as cap stone and rubble packing are absent. Another meg. had 12 boulders in the circle with an internal diameter of 4.30 mt. and an outer circle of 6.48 mt.

(b) THUMMANAPALLI:-

The village Thummanapalli is 4 km. south of Huzurabad on the Karimnagar - Warangal high way. There are traces of megalithic circles scattered with boulders and rubble packing. The total area of the site is half a hectare. There are presently 6 intact burials. One burial had an internal diameter

of 6 mt. with 14 boulders in the circle. The average distance between burial to burial is not more than 2 mt.

(c) CHILPUR:-

The village lies 10 km. away from Huzurabad. On the outskirts of the village a small group of megalithic burials extending over an area of one acre on the slopes of a small hillock. By the side of the burials is a small rivulet. The average distance between burial to burial is 2 mt. Only 2 burials have capstones, one of which measured 1.50 x 2 mt. and a thickness of 75 cm. The number of boulders around the burials varies from 14 to 22.

(d) SIRISIPALLI:-

It is about 7 km. from Chilpur in Huzurabad taluk. A huge burial complex with 40 numbers lies towards north-west. Two burials with double circles were noticed. One of them had 16 boulders in the inner circle and 9 in the outer circle. The inner circle has a diameter of 6 mt. and that of ^{the} outer being 7.50 mt. The second has a circle of 19 boulders inside and 21 outside, with diameters of 8 and 9 meters respectively.

MANDAPALLI:-

Mandapalli in Medak district is situated a kilometer away on the east of Siddipet-Karimnagar road. There are about 45 megalithic circles here. There is another burial complex with 16 burials to the north-east of the village. The complex

contains besides pit circles, cist burials the slabs of most of which have been removed by the villagers.

PALAMKULA:-

Palamkula is situated on the Siddipet-Husnabad road, about 14 km. from Siddipet. To the north-east of the village there is an extensive megalithic complex with only 30 burials remaining. Most of the burials have been disturbed by the villagers.

NARMATI:-

It is about 3 miles away from Palamakula. There is no proper conveyance to the village and the approach is by a narrow cart track. The village and its surroundings are covered by black soil, mostly uneven and cultivated by wells. There is a megalithic burial complex towards south of the village. Most of the cist burials have been disturbed by the villagers for the sake of the stone slabs; most of the circle stones also have been removed and utilised for demarcation of field boundaries.

FULLUR:-

It is a small village about a mile away from the Siddipet-Kamareddi road. At present there are about 40 megalithic burials on either side of the Siddipet-Kamareddi road, many being disturbed by the local people.

POCHAMPAD:

The department of Archaeology and Museums conducted excavations at Pochampad⁴⁸ on the right bank of river Godavari in Nizamabad district, for two field seasons, at an extensive megalithic burial site. The three km. long stretch along with bank of the river Godavari is marked with several megalithic burials in the form of single and multiple cairn circles.

MEG.-I: -

It consisted of a single circle of untrimmed massive granite boulders number ~~34~~^{fourteen} and measuring 3.6 mt. in diameter. The space in between boulders had a very thick scattering of rubble which extended to the centre. It appears the burial was partly disturbed by treasure hunters. However, the funerary assemblage remained undisturbed. At the bottom of the pit measuring 6 x 4.6 ft. pottery was huddled-up consisting mainly red-ware pots and black and red ware bowls and dishes. The bottom of the pit was levelled up by a deposit of loose earth to a thickness of 5 cm. as a sort of cushion to the overlaid pottery. The black and red ware bowls were seen to have interred first than the red ware. In the middle of the pit was seen two crushed skulls besides a few bones deposited over the red ware pots. The skulls were completely crushed leaving no traces of identification. The mandibles were seen dislodged from their sockets. The whole pit was filled-up with dug out earth and alluvial clay clods upto the brim level.

MEG-II:-

It consisted of 19 closely planted unhewn granite boulders with an external diameter of 34 ft. and had a very heavy packing of rubble. The excavation revealed a central pit measuring 7'-1" in length and 5'-6" broad and had its orientation in the east-west direction. The pottery consisted of black and red Ware, red and all black ware comprising mostly of pots, dishes, and hour-glass type stands. To the extreme left of the pottery were seen 4 skulls in a crushed state. One of the skulls faced upwards with the frontal region and mandibles intact, and the bones laid in an extended position. The iron objects consisted of a sickle, a chisel and a few animal bones seen lying by the side of the pottery.

MEG-III:-

It is bounded by a circle of 14 unhewn granite boulders. The little space in between the boulders is filled by a tight packing of rubble brought from the river bed. The rectangular pit measured 2.85 mt. x 2.09 mt. On the pit floor was placed a large bulk of pottery consisting mainly of 14 red-ware pots. Along the western edge of the pit over the red ware pots was placed a heap of skeletal remains in a disarticulated state. The crushed skull, separated from the mandible is placed towards north and turned to west. On the right side of the skull a lump of an animal bone at a fairly higher level was noticed.

KADAMBAPUR:-

The extensive excavations at Peddabankur have not yielded any human skeletal remains. Kadambapur⁴⁹ is the nearest burial site to Peddabankur and it is reasonable to presume that the people lived at Peddabankur buried their dead at Kadambapur.

Kadambapur exactly north of Peddabankur in Peddapalli taluk at a distance of 8 km. has a huge burial complex consisting of more than 500 burials, perched on the western and eastern slopes of the hills. The river Maneru, ^atributary of Godavari, is abutting the burial complex towards south. The Andhra Pradesh Dept. of Archaeology and Museums excavated 5 burials under the supervision of the author.

MEGALITH-I:-

It is situated at about 100 mt. from Pavuralabodu and appears to be an important burial, prominently marked by a double circle of 21 large sized boulders in the inner circle with diameter of 7.60 mt. and 25 boulders in the outer with a diameter of 9.75 mt. The boulders were firmly packed with cairn filling consisting of basaltic and granitic pebbles. The filling rose to a tumulus of 1 mt. high from the surface. The pit was covered by a huge cap stone measuring 7 x 4 mt. with a thickness of 40 cm. weighing approximately 10.15 tons. It must have been滑ed down to the burial pit by constructing a ramp. The burial pit, cut to a depth of 2 mt. from the cap stone

was filled up with loose brownish earth with a mix-up of small kanker and granitic morrum that was dug out from it.

The pit contained a badly crushed skull, with parietal and occipital bones broken into small fragments. The mandible and maxilla were missing. A few fragments of longer bones such as femur, tibia, fibula were placed in a rough alignment.

The funerary pottery was arranged at varying levels. The bigger red ware vases were placed at a higher level which were subsequently pressed-down and broken. At a slightly lower level was a ring stand with a black ware shallow dish over it. At a still lower level were the smaller pots and bones.

A javelin, 1.25 mt. long with a shouldered head and tip slightly broken was placed parallel to the skeletal remains. Another copper hilted curved dagger was near the skull at a corner of the pit. A second smaller javelin was placed by the side of the bigger one.

MEGALITH-II:-

It is situated about 10 mt. west of Meg-I and consisted of double circle of boulders, 21 in the inner with a diameter of 6.60 mt. and 25 boulders in the outer, 7.60 mt. in diameter.

The two circles were provided with a firm packing of basaltic and granitic pebbles. A small cap stone, 1.30 mt. long and 42 cm. broad, covered the burial pit. The pit was cut to a depth of 1.50 mt. from the cairn and oriented in the east-west direction.

This is a secondary burial with two badly crushed skulls placed at the northern end of the pit with a bottom cut-out conch near one skull and another placed near the chest of the second skull. A single mandible and a few longer fragmentary bones, femur and tibia, were placed in a rough articulation.

A small dagger was found near one of the skulls and a pair of javelins each about 85 cm. long were placed over the pottery. Leaving out the skulls, all the other bones were covered up with funeral pottery.

The interesting feature of this burial was the absence of black and red Ware. The other wares included dull red ware, black ware and red ware. The bigger vases are of red ware and hour glass type ring stands are of black ware and the smaller vases of red ware. The total number of pots were twelve, mostly crushed.

MEGALITH-III:-

It is located about 50 mt. north of Meg.II, has a single circle of 19 granitic boulders with an inner diameter of 7.00 mt. and a huge cap stone measuring 3.35 x 1.83 mt. with a thickness of 0.46 mt. half of it being visible before excavation. A tight packing of rubble between the cap stone and the boulders rises to a height of 60 cm. from the surface level. The pit 2.30 x 1.00 mt. was found 1.10 mt. deep below the cap stone. It was roughly

rectangular in plan and oriented exactly in the north-south direction. It was filled up with morrum and disintegrated rock that was dug out from it.

The skeleton with complete articulation was placed in the middle of the pit over a bed of soft clay with a thickness of 8 cm. The skull was badly crushed and was placed towards north with two small stones on either side. On both the flanks of the mandible were found two spiralled wire ear rings with much encrustation, apparently made of gold. A dagger 28 1/2 cm. long, 5 cm. broad was found thrust into the clavical which was slightly dislodged from the original position. The phalange bones of both the hands were pushed into two bottom-cut oances. A few of the ribs were slightly damaged and the pelvic bones also crushed. The left femur was broken. Interestingly the right tibia and fibula were found cut in oblique fashion and the heel bones were missing. The truncated tibia and fibula were placed over two stones.

This strange custom was also noticed at Diamabad⁴⁶ where the part below the knees was cut off. There were 14 port holes all round which suggest the existence of a canopy. It is therefore suggested as a case of 'lying in state' before the burial. At Inamgoan⁴⁷ in case of adults the part below the ankle was found missing.

On the right side of the pit were two hand made, flat based, ill-fired, dull red ware jars. There is an applique

cord design over the hand made vases. The smaller black and red ware pottery such as the bowls, funnel shaped chalices, ring stands, etc. were arranged over the body below the shoulders leaving the skull open. The total number of pots were more than 33 in number. Just over the pelvic portion, seven dull red ware ring stands with funnel shaped chalices were placed.

MEGALITH-IV (Dolmenoid Cist) :-

Meg-IV is a disturbed cist burial with a single concentric circle of 21 boulders. But for the northern orthostat, the other three were removed and thrown-out in pieces by the treasure hunters. The cist was provided with a floor slab measuring 2.30 x 1.20 mt. with a thickness of 6 cm. The northern orthostat with a height of 1.25 mt. and 1.70 mt. broad was provided with a big port-hole chiselled almost in the middle with a diameter of 50 cm. It was firmly sealed with a granitic door slab (0.75 x 0.65 mt.) After closing the door a tight packing of rubble was given behind the door to avoid its falling back. A shallow ramp was provided to enter the port-hole through which a man could conveniently enter the cist so as to arrange the funerary offerings.

The floor slab (10 cm. thick) was found at a depth of 1.30 mt. from the present surface. The cist was filled up with funerary wares and earth over the skeletal remains to a height of 80 cm. Fortunately, the hand of the robbers did not touch deep into the deposit.

Two skulls much pressed and crushed were at the northern end of the pit. The maxilla and mandible were displaced. A single clavical was placed parallel to ulna and radius. A pelvic, also crushed was below tibia and fibula. Evidently this was a secondary burial with longer and important bones placed in a rough extended articulation. The skull on the right was badly crushed and sutures dislodged. The other skull is also pressed heavily against the floor and features distorted. A single clavical was placed vertically under the mandible of the 1st skull. The ulna and radius were bundled-up below a pelvic, found in the middle. Most of the bones were in a very fragile condition.

The skeletal remains and the funerary ceramics were placed over a bed of morrum mixed up with clay to a thickness of 5 cm. No preservatives such as lime or ash were used. At the south-eastern corner inside the cist a fragment of an animal bone was found. There was no evidence of cremation. Most of the bones were fragmentary.

A crescentic tanged battle axe was on the right side of the skull. Another pointed knife was also near the head.

Lots of black and red Ware with elongated neck were placed towards south. The entire pottery was wheel-made. One of the red ware vases found in this burial has an incised design in the form of a square with loops at the corners. The same design was found over a garnet button seal found at

Peddebankur with a Brahmi inscription of early Mauryan characters reading as KAMASA.

MEGLITH-V:

It is a double circle consisting of 21 inner boulders and 25 outer with an inner diameter of 6 mt. The ovoid burial pit (2.46 x 1.36 mt.) was covered with a huge cap stone 4 x 2.55 mt. and 37 cm. thick. The total depth of the pit was 1.98 mt. from the cairn filling. The floor was paved with 8 cm. thick deposit of ashy clay.

The skeletal remains were simply huddled without proper arrangement. Two skulls were found side by side with a dislodged mandible. A femur bone was placed over a skull across the left ear socket. A mandible with molars dislodged was near a pelvic. The humerus, ulna and femer etc. were kept in an oblique position to the skull. The second skull was much crushed and flattened. The occipital bone of the first skull was broken into small fragments. A single vertebra was found near a pelvic. A phalange bone was placed into the left eye socket. At the four corners were found four small stones.

At the floor level is an iron javelin (1.55 mt. long and 2 cm. thick) provided with a shouldered point (41 cm.). In the vicinity is a tanged spear head and a 12 cm. long barbed arrow-head. Another 11 cm. long arrow-head is at a distance of 10 cm. from the javelin. In total seven iron implements such as javelin, spear-head, arrow-head, dagger and knife, etc., are found.

The funeral offerings were arranged in different levels. At the same level as the bones are the black and red ware pottery such as dishes, placed over hour glass type ring stands. An all black ware vase, a funnel shaped chalice, a black and red ware dish, a black and red ware carinated deep bowl are found near the skulls. Most of the pots are at the eastern side of the pit. At a height of 40 cm. above the floor two red ware storage pots slightly tilted towards the pit were found at the north-eastern corner. The skeletal remains occupied a total space of 58 x 65 cm.

In between the dagger and javelin a half broken terracotta annular bead evidently, an ear ring with 1 cm. diameter perforation was found.

It is very interesting to note that no agricultural implements were noticed in any of the burials excavated.

GRAVE GOODS:-

The megalithic burials contained a large variety of pottery, iron objects, few stone objects and ornaments such as beads of terracotta, semi-precious stones, gold or copper, shell etc. Sometimes ear or nose ornaments, armlets or bracelets, and diadems were noticed. Very often grains of paddy and other cereals were offered. Some burials also contain skeletons of domesticated animals such as horse etc.

The most important among the burial furnishings is the pottery, which consisted mainly of the black and red; the

black polished, and red polished, coarse red wares etc. The russet coated painted ware, which was reported from some South Indian burials is totally absent in the burials at the Karimnagar region. Gururaja Rao⁵⁰ classified the megalithic pottery into two groups, the coarse and unpolished receptacles like the burial urns, the sarcophagi and their lids and secondly the well fired finely polished smaller vessels.

The burial urns are also mainly of two categories, the sarcophagi and the pot burials. The sarcophagi ware generally made of coarse grain^{ed} gritty clay and mostly hand made.

They are shaped into thick sectioned large vessels of pyriform or fusiform urns with elongated body, pointed or truncated bottom as found at Adichanallur in Tinnevelly dist, Madurai district and Amruthamangalam in Chengalpat district, Amaravati and Nagerjunakonda in Guntur district. In one of the burials at Nagarjunakonda two huge red ware urns, one hand made with flaring rim, elliptical body tapering to a disc base with a mat design was noticed. It has a light-red slip. The other urn was cruder than the above. It has finger tip decoration in double rows on the shoulder and a loop on the lower. From Bayyaram megalithic burials a three-legged pyriform pot of dull-red ware was extracted. It has three legs shaped like teats of cow, but for the legs, the entire pot was wheel made. At Amaravati⁵¹ Alexander Rea excavated 17 urn-

(Pl 6-a)

burials below a minor stupa. The urns contained earth and pottery. An urn-burial was excavated below a Buddhist stupa at Yelavarai⁵². It is a large red ware pot containing human skeletal remains covered by an inverted bowl serving as lid. The pit in which the pot was deposited was sealed with a cap stone.

The other type, the sarcophagi were noticed in cairn circles, in cist burials and as well as separately. They were sometimes provided with flat or convex terracotta lids. Some sarcophagi have rows of legs at the bottom. Some aberrant types of sarcophagi are the zoomorphic types like the ram shaped sarcophagus from Sankhavaram or a cow shaped sarcophagus from Kerala,⁵³ or elephahoid urns from Perambair.⁵⁴

The sarcophagi either in pit circles or cist burials are found from South Arcot, Chenglepat and North Arcot districts of Tamilnadu, Kolar district of Karnataka and Cuddapah, Kurnool, Mahboobnagar, Krishna and Guntur districts in Andhra Pradesh. The commonest types are oblong cists with apsidal ends, vertical walls, and thickly grooved rims. The walls slightly bend inwards resulting in a bulging body. Sometimes they are found with two or three rows of legs ranging from 4 to 21 or more in number, often hollow and pierced with holes as at Emmer, Kunnattur, Sanur and Peddamarur.

A unique terracotta sarcophagus was excavated in the past, at Maski. It is long cylindrical in section with a flat bottom and rounded top and has a squarish door in the middle with a convex door slab.(Pl 6.6)

A unique ram-shaped sarcophagus from Sankavaram⁵⁵ in Cuddapah district has an oblong chamber and has 6 legs. It was decorated on its upper border with rope designs alround. The lid was in two pieces, the front one rising up in the form of the animal's neck terminating in a socket into which fitted a detachable head of a ram like animal with entwining or curling horns. The back part was rounded and without a tail. It contained uncalcined human skeletal remains.

The sarcophagi excavated at Tenneru in Krishna district appear like huge bath-tubs each about 2 mt. long. They were made into two halves and in case of shortage of a suitable size for any abnormally tall individual the two halves were pulled apart and the gaps between the halves were plugged by a package of pot sherds. The sarcophagi were covered with convex lids. The largest earthern ware sarcophagus measured 1.94 x 0.50 x 0.50 mt. It has 12 perforated legs in ^{two} 2 rows. Some have a thin red-slip and decorated with an applique design of chevrons over the shoulder. Some have two perforations in the front side either representing a visage type or port-holes.

Three types of sarcophagi were recently excavated by the author at Peddamarur in Mahaboobnagar district. All the three came from megalithic cist burials with single, double or triple chambers. The cists have invariably port-holes and passage chambers towards south. In Meg-2 a double chambered cist with two sarcophagi were found in the western chamber and one in the eastern. Out of the two one is of red ware and the

other coarse red, both placed in the north-south orientation.

The first sarcophagus, the red-slipped one, is barrel shaped and pentagonal in cross-section and truncated at both the narrowing ends. A door 20 x 17 cm. was provided slightly above the base, with a door slab. Pl 6 c

The second sarcophagus, of coarse red ware, wheel-made, is fusiform and pointed like a spindle at both the ends. The body was wheel-made and the pointed ends hand-made. It has a faint red wash and decorated with double rows of multiple concentric lines over both the tapering ends. The door in the middle has a closing slab.

The third sarcophagus, hand made, is oblong and rounded at both the ends. It has 6 legs in two rows and decorated with an applique band of finger impressions below the rim. At one side of the rim a matt-red terracotta figurine of a bovine animal, was luted. As it was intended to be luted to the sarcophagus in the place of the second horn, it has only a single sturdy horn with a backward sweep. The head is slightly turned aside. Bulls or cows, if they are long horned ones usually have horns curving forward and, if they are of short horned type they are stumpy and pointed. But the horn of the above terracotta figurine is sturdy and rounded like that of a bull or cow but is long with a backward sweep resembling that of a buffalo.

The buffalo is believed to be the vehicle of Yama the God of Death and presiding over the southern quarter. The cist

burials with passage chambers at Peddamarur and the neighbouring sites, Uppalapadu and Chagatur, have the passage and the port-holes invariably towards south. The elliptical houses excavated at Peddabankur in Karimnagar region possibly contemporary with the megalithic period have doors facing south.

The typical black and red ware is invariably associated with all the megalithic sites in South India. It is characterised by uniformly fine fabric, burnished and always plain without much decoration. It is generally burnt in low temperatures so that it withers away if kept under wet conditions for long. The clay of the black and red ware or black ware was well levigated and does not usually have any sand particles in the paste. It is wheel turned and the fabric ranges from medium to fine. It was fired under reducing conditions possibly by inverted method. The vessels have a glossy slip on both sides and a few were salt glazed by throwing salt into the fire in the later stages of firing. The crackling noticed over some pots was due to salt glazing. Krishna Murthy⁵⁶ suggested that the pottery was fired on open platforms with slots provided at equal distances.

Beneath the platform entrances for feeding the flames were provided. The pots were kept with the rims inserted into these grooves and the rest of the pot exposed. In the interior portion of the pot was always filled or pasted with combustible material. When the pots come into contact with the flames the

exterior portion of the pot which is exposed turns red and the rim portion turns black due to indirect contact with the flames. As a rule the interior portion turns black due to its concealment with the combustile material. The black slipped ware was fired under completely reducing condition.

In Meg-I, a triple chambered cist burial at Peddamarur, there is a unique red and black bowl, which is red at the rim and black below and inside. It appears that the pot was straight fired by piling up one bowl over the other. As the top portion, about 2 cm. long was fired under oxidising condition it turned red and the lower portion fitted into another bowl in reducing condition and turned black.

While the black and red ware and black slipped ware are characterised always by smaller pots of various shapes the red ware includes besides few small pots like ring stands, globular pots which sometimes contain skeletal remains, some carinated handles, but majority of the shapes are globular pots, storage jars etc.

The coarse red ware is marked by some ring stands, lids, miniature pots besides the urns and the sarcophagi etc. Among the red ware are included medium sized vessels with out-turned externally thickened rims, concave neck and bulging profile. There are also typical tulip shaped lid-^{Cum}-bowls - a common type in most of the megalithic sites. There are basins with externally cut thickened rims sometimes sharply or bluntly

carinated; pot bellied vases with out-turned featureless or spayed-out and externally grooved, thickened rims; jars with externally thickened and under-cut rims sometimes decorated with chevrons. The black ware types included ring stands, mostly of squattish type with an hour-glass section, conical bowls, gourd-shaped flasks, lids, dishes, platters, straight-sided or concave-sided miniature pots, perforated globular pots with thickened rims, etc.

The more common shapes in black and red ware from the megalithic burials include deep bowls with round, flat, or pointed bottoms, with straight, flaring or bulging sides, often carinated at the shoulder and having sharpened rounded, everted, or featureless rims, dishes with round, flat or sagger bases, straight or convex sides with featureless, sharpened, everted or nail-headed rims, deep or shallow vessels with rounded base, globular body, carinated or rounded shoulders, occasionally sharp or long, straight or concave necks, globular bodied pots are also found.

The rare types of black and red ware included, chalices or bowls on hallow pedestals, with or without slits on the hallow pedestal, or the pedestalled vases as from Maski⁵⁷, tulip shaped vessels, lid-cum-bowls, funnel shaped lids with convex top, ring terminal top or flat knobbed top, three or four legged jars, conical or long tapering bodied and carinated shoulder, vases and spouted bowls etc. From Gajjalakonda⁵⁸ in Kurnool district a unique ladle with a solid handle was found under a sarcophagus.

It is buff-coloured 9 1/2 inches long and 5 inches tall.

Mention may be made of the long funnel-shaped black
 and red ware vessels, found in many megalithic sites as at
 Brahmagiri (Type-100 p.234-235) Sanur (Type-77 p.28) Maski;
 (Type B(V) 2; p.62) etc. and Pikkihal. Similar types also
 occurred at Kadambapur and Pochampad in Karimnagar region. In
 Meg.III a pit burial in Kadambapur seven black and red ware
 funnel shaped vases with rounded finial tops placed over seven
 ring stands of coarse red ware, were deposited over the belly
 of a skeleton noticed with complete articulation. They were
 previously designated in the excavations mentioned above as
 lids, but their rims are thin and slightly out-turned without
 ledge or groove to cover a pot. Evidently these are goblets or
 chalices and their placement over the ring stands in situ
 strengthens the above view.

A slightly bigger all black ware funnel-shaped vase with
 rounded bottom was recovered at Pochampad. The other type is
 a black and red ware vase with a flat base, a thin featureless
 rim decorated with concentric grooves below the rim.

The rare types from the megalithic burials in the
 Karimnagar region included deep bowls with featureless slightly
 out-turned rims and a ledge near the flat bottom. It looks as
 if the red portion of the lower half of the bowl and the black
 portion of the upper half were made separately and luted before
 firing. Similar bowls were reported from Sanur.⁶⁹ The bowl from

Kadambapur has a graffity of circle with a bisecting line across and another spiral like incision.

There is an all black conical lid from Pochampad in Nizamabad district with a deep groove inside the rim so that it will sit securely over the vessel intended to be covered. This type was also noticed at Sanur.⁶⁰

(Plate 7 a)

Four varieties of funnel shaped lids, all in black ware are usually noticed, one is a dish shaped lid sometimes decorated with concentric bands below the neck and deep groove inside the mouth. This type was reported from Yelleswaram and Jadigenahalli.⁶¹ The second variety is recovered from Pochampad. The lids have deep channels under the mouth and terminals at the top in the shape of horizontally projecting double pointed knobs for easy grip. The terminal of one lid has flat double knob, one side slightly raised probably to suggest the head of an animal. The third type comes from Kishnapuram cairn circles which has a ringed terminal. Similar types were reported from Sanur,⁶² Brahmagiri⁶³ and Arikamedu⁶⁴ Nagarjunakonda⁶⁵ and Yeleswaram.⁶⁶

In one of the Yeleswaram⁶⁷ pit circles a burnished black ware dish on stand covered with a lid is unique. The lid has a ring terminal. The circular stand has triangular perforations in the lower half and rectangular perforation in the upper half. A dull red ware ring stand with triangular projections at the top was reported from Pochampad.⁶⁸

The fourth variety has a knobbed terminal with a ledge below. This type was found from Peddamarur and Yelleswaram⁶⁹ and Kaundinyapura⁷⁰, all cist burials. Similar knobed lids come from Khapa⁷¹. The knobbed terminals from Peddamarur and Khapa resemble a human phallus. If it was really made to resemble as such we have to examine whether the ring and knobbed terminals may represent the sex symbols of the dead. According to Asvalayana Grihyasutra⁷² IV.5 the urn containing the bones of women had special marks but not the urns with bones of men. Narayana, the commentator, called the former as Stanavathi and the latter as Stanarshita. Aiyappan⁷³ draws attention to the opinion of Dr. Heddon who commented that the pot forms are modelled on natural objects and that the pottery shapes in India seem to have derived from natural objects.

Mention may be made of hat shaped lids found at Peddamarur. Some lids have ledge under the mouth and hallow in side. Some are coarse red and others have a thin pale red slip. They were found both in the habitation and as well in the cist burials. Some of the lids resemble a female breast with indication of even the nipple.(Pl 7. d)

An all black ware bowl from Virabyoinikunta, ^a Yelleswaram ^{at} is bluntly carinated at the shoulder and has a groove around the rim and rounded base. When the pot is inverted it appears like a tumulus.

In Meg I at Peddamarur a pit was scooped into the bed rock under the floor slab of the cist to deposit some funerary ceramic assemblage consisting of a squatish ring stand, gourd-shaped black ware pot etc. The pot has a bottle neck opening to a splayed out mouth which has a groove inside. It is bluntly carinated above the flat base. Similar pots were found at Viraboyinikunta, Lohimancheruvu both at Yelleswaram and Moualali⁷⁴ and Hashmathpet⁷⁵ near Hyderabad.

Also from Peddamarur there is a coarse red ware medium (Plate 9 a middle pot) sized pot with three perforations, two above in one line and one below possibly representing visage type. The pot was kept exactly at the north-eastern corner of the cist, which is still known as the Lakshmi Sthāna. It is likely that the pot may symbolise a Mother Goddess. Visage urns were previously noticed in the Swat Valley⁷⁶ graves at Timer garha (1904).

A black ware dish in Meg I at Peddamarur was decorated with a Sun symbol with a circle in the middle enclosed by triangular radiating lines. These radiating lines are again enclosed by a chevron pattern in between two concentric lines. In the later Buddhist art we find Yakshas or Yakshinis enclosed in a lotus medallion, as found at Dhulikatta⁷⁷ in Karimnagar region.

From Pochampad pit burials is found a rare type of red ware vase with a squatish or bulging body and a long cylindrical neck narrowing towards a featureless rim. Some vases have bulges in the middle of the neck.

IRON OBJECTS:

In South India iron objects constitute besides pottery, the other important feature of the megalithic burials. The repertoire of iron objects found in the megaliths display a wide variety pertaining to household, agriculture, and war,. They include daggers, knives, wedge shaped blades, lances or javelins, spear-heads often with barbs on one or both sides; arrow-heads, both socketed and tanged; swords of single or double edged. Besides, there are objects of house-hold utility and agricultural implements such as flat-axes ^(Pl 8-a) often with ring-fasteners, hatchets, chisels, tripods to support pointed bottom-ed vessels, lamps, hooks, knives, sickles, bill-hooks, spades, hanging saucer lamps, rods with rounded heads resembling the beams of weighing scales, hoe-blades, horse-bits, ferrules, bangles, nails, frying pans, laddles with long handle and bells etc.

In the Karimnagar region the megalithic burials at Pochampad have yielded a crop of iron objects. These include a number of daggers of various sizes, the biggest measuring near 35 cm. They have copper or bronze ferrules at the top of the blade at the junction of the tang. The ferrules have holes in the middle to be inserted through the tang, the purpose of which may be two-fold, as a decorative piece and to avoid back-ward jerk of the sharp iron blade. Similar daggers with copper ferrules were noticed at Kadambapur burials and with iron ferrules at Nagarjunakonda.

The other object is a goad or ankush with a massive rod handle and a horizontal curving spike. The weapon is usually found in Hindu sculptures carried by the Gods and Goddesses. It was probably used as an elephant goad and also as a weapon of war-fare. A similar bronze weapon from Mohenzo-daro⁷⁸ was described as a hook.

There are also good number of chisels with sometimes curved or flat cutting ends. Arrow-heads are both tanged and socketed. They were found at Nagarjunakonda⁷⁹, Yelleswaram⁸⁰, Sanur⁸¹ Sisupalgarh⁸², Brahmagiri⁸³ Takalghat⁸⁴ and Maski⁸⁵ in the megalithic context. Two unique types of arrow-heads come from Peddamarur cist burials. Both are blades in the shape of an isosceles triangle. The arrow head was possibly hafted at the base of the triangle. A lenticular arrow-head was recovered from Peddabankur in the megalithic level with pointed ends at both the sides. It was probably hafted at the shorter point. (Pl 8 d)

The other objects to mention are horse-bits and stirrups. The stirrup from Pochampad has a flat horizontal leaf shaped plate attached to two vertical blades at the back. Both the blades were riveted together at the top to be fastened to the leather strap. Stirrups were previously recorded at Adichanallur⁸⁶, Sanur⁸⁷, Kunnattur⁸⁸ in Tamilnadu, Janampet⁸⁹ Pochampad,⁹⁰ Uppalapadu⁹¹ and Guntakal⁹² in Andhra Pradesh, Junapani⁹³ and Takalghat⁹⁴ in Maharashtra besides the skeletal remains of horse itself at Pochampad and Junapani.⁹⁵ It is a

clear proof that the horse and its saddlery were quite in vogue during the megalithic period. The animal must have been put to various purposes. Gururaja Rao⁹⁶ suggested that the use of horse may indicate cultural indebtedness to the Baluchi cairn builders. The other interesting bit of saddlery are the curb-chains to which the reins are fastened at the two ends and the chain inserted into the mouth of the horse.^(Pl. & fig A/3 c) Such chain with two separate links was recorded from the megalithic level at Peddabankur. Each of the links were pressed together in the middle.

The other interesting tool is an axe or celt with crossed fasteners. A clefted wooden handle was possibly hafted through the crossed-straps. Similar axes were noticed at Takalghat⁹⁷ Junapani,⁹⁸ Sanur⁹⁹ Brahmagiri¹⁰⁰ and Adichanallur.¹⁰¹

A similarly fastened adze^(Plate 9 G top row) came from the megalithic occupation level at Peddabankur. The iron strap is wound into a double ringed shaft hole around a thick adze blade which has a blunted butt end and straight cutting edge. A nail was driven into the haft through the back ring for securing the adze blade which is 16 cm. long (No.12 PBK 68). There is an iron plate casing inside the crossed fasteners. Similar crossed fasteners with casing but without the adze blade was found in the same level in other trench.

Mention may be made of two battle-axes (Parasu) from a cist burial at Kadambapur and a pit circle at Pochamped. The

Kadambapur axe resembles a mushroom in shape with a convex cutting edge, 28 cm. long. The concave butt-end was possibly hafted to a clefted wooden handle with metal rings above and below to prevent the wood from splitting. The axe from Pochampad has a convex cutting edge and flat butt end. Battle or double headed axes of iron are very rare, but of bronze or copper, were previously recorded at Dunrad¹⁰², Gungeria, Sarthouli and Hallur. One miniature axe from Hallur¹⁰³ has a splayed out cutting edge and narrow convex butt end. The other axe looks like a brooch or bow. (Pl 5 d top portion)

Sickles were found in many of the megalithic burials such as Pochampad, Brahmagiri¹⁰⁴, Sanur¹⁰⁵ etc. They were also reported from Nilgiri Hills¹⁰⁶ and the burial urns at Adichanallur and Perumbair.¹⁰⁷

In the recently excavated cist burials at Peddamarur a screw object possibly used as a drill bit was recorded, the purpose which is intriguing. A few perforated pots in the excavation may indicate that the drill bit might have been used for perforating the pots. It might also have been used for trepanning but there is no evidence as such. It is a long thin wire of iron with the body cabled or screwed. Analogies of such drill-bits come from Takalghat¹⁰⁸ Adichanallur and Jadigenahalli.

(Plate 9.d)

Two mattocks (adze-cum-axe) without shaft holes found in the megalithic occupation level at Polakonda in Warangal district,

were perhaps hafted with a cleft wooden handle at the thin portion in the middle. A mattock of copper found at Mohenjadaro has a shaft-hole. Mackay¹⁰⁹ was disinclined to accept it as a product of Indus Valley culture, it being the only socketed implement found there. He preferred to regard it as of a later date perhaps even as late as Kushan period. As such the mattocks of Polakonda may probably the earliest specimens. At Peddabankur it was noticed that for the first time the shaft holes were provided for the adzes, as no axe with a shaft hole was found either in the megalithic or later level. All the axes from Peddabankur are flat celts.

The other interesting and unique object is an inverted trident from Pochampad with a projecting spike or spear-head at the top. The weapon was to be carried in the reverse direction so that the projecting spike of the central massive rod acts like a spear while the side prongs as shield. This is a unique object with no known parallel so far. At Yaleswaram¹¹⁰ in a pit burial was found an iron lance with four spikes at the butt end which probably served a similar purpose. Common tridents with long shafts were found at Adichanallur and Raigir etc.

COPPER OBJECTS:

Copper or bronze objects are rare in the megalithic burials of the Karimnagar region. They are found only in the form of ferrules or casings for weapons like daggers, bells, cups, or ferrules of walking sticks. In a cairn circle at Moulali¹¹¹ a

copper bell with an iron tongue which was still *insitu* and movable was found. In the further excavations conducted by Yazdani¹¹² a metal cup (79 per cent copper 21 per cent tin) was discovered at the northern extremity of a cairn circle. Another find was a fragmentary copper bell. A copper bell was also reported from Khapa.¹¹³ At Mashmatpet¹¹⁴ Yazdani recovered 3 bronze articles, all of them being ferrules of walking sticks. A copper band to be tied around neck of a calf came from Raigir.¹¹⁵

The other objects of copper consist of household utensils like bowls from Kunnattur¹¹⁶ and other places in Tamilnadu, rattles, collyrium rods, bangles, rings etc. used for ornaments, toilet objects and rarely for utensils. From Khapa¹¹⁷ a dish with convex sides and flat base has a lid with a circular base and the tapering sides are crowned with finial depicting four birds perching and facing each other. Another dish similar to the above but bigger in size has lid with a motif of four birds. Deo suspects a southern inspiration behind those motifs.

GOLD OBJECTS:

Gold objects were found in a few of the megalithic burials. A pit burial from Kadambapur contained two spiralled ear rings. At Nagarjunakonda (in Meg.No.XIV) two spiralled ear rings and 53 small cylindrical beads, 35 of gold and 18 of silver spacers were recovered. At Polichetty Cheruguda¹¹⁸ near Janampet a gold ear ring probably spiralled, was found from Cromlech-B excavated by Kwaja Mohammad Ahmed in 1940-41. At Brahmagiri¹¹⁹ gold beads

of disc, cylinder of circular cross-section and long cylindrical, were recorded from pit-circles.

BEADS:-

Variety of beads were noticed from burials and habitational excavations. These include beads of gold, silver, copper, besides different types of semi-precious stones such as carnelian, jasper, agate, onyx, serpentine, lapis lazuli, milky quartz, amethyst, glass, terracotta, shell, bone etc. Beads of terracotta, annular in shape are common from Kadambapur and Pochampad burials,. Analogies occur at Brahmagiri¹²⁰, Maski¹²¹ Kesarpalli¹²², Nagarjunakonda¹²³ etc. The megaliths at Raigir¹²⁴ yielded 108 beads, 73 of which were of lapis lazuli, 15 of quartz crystal, 3 of milky quartz, 2 of granulite, one each of agate and jasper and two or variegated jasper. Of them 59, had circular transverse section while the other 49 were not so. The graves at Moulali¹²⁵ near Hyderabad yielded small gold annular beads of large, medium and small sizes. While the small and medium sized beads are of high quality gold, the three larger ones are whitish in colour due to admixture of silver, probably added to produce the electrum.

Several types of beads were recovered from recent excavation at Peddamarur from the burials as well as megalithic habitation levels. These include beads of terracotta, horn, jasper, carnelian-etched, quartz-crystal and fossilized shells. Also there are a few cylindrical glass beads square in cross

section. The terracotta beads were tabloid and sometimes decorated with concentric circles incised on the lathe itself. Beads of jasper are mostly spherical, and of dark green and brown hues. The carnelian etched and white painted beads are mainly of two types, one is a long barrel circular and the other is spherical. The long barrel type was decorated with double rows of chevrons enclosed by concentric lines on either side. Identical beads are noticed at Sanur¹²⁶, Brahmanabad¹²⁷, Brahmapuri¹²⁸, Maski¹²⁹, Sangana kallu¹³⁰ and Porkalam¹³¹.

The spherical carnelian beads are decorated with circles which have dots in the centre. In all probability the circle with dot may represent the Sun, a symbol found in the chalcolithic levels as well.

The other beads from Peddamarur burials are of hexagonal barrel shape made of quartz crystal recovered from both the habitation and burials. Identical beads were reported at Prakash¹³² in the iron age context.

ORIGIN OF MEGLITHS:

The problem of the origin of megaliths is still elusive and the inferences drawn by various scholars are hypothetical. Some writers have claimed that the black and red ware pottery with which the megalithic culture is invariably associated is homogeneous, owing to a common origin and the folks who made this ware were also responsible for the introduction of iron either in

the Gangetic plains or in the peninsular megaliths. These folks are often identified with the Dravidians who moved from their nucleus in the Rajasthan area, in the Banas Valley or from the Ganga-Jamuna doab. Either after or before their exodus to the south, they picked up the megalithism and iron technology.

Benerjee¹³³ suggested that apart from the basic divergence of shapes and fabrics of the ware and chronological levels which have yet to be fully worked out, it should be emphasized that pottery alone does not form a culture. The other concomitant elements have to be assessed and it would be preposterous to speak in terms of a single black and red ware culture.

There are certain striking similarities in colour, shape and fabric between the chalcolithic and the megalithic black and red wares. But Sankalia¹³⁴ has argued that the problem of the black and red ware is not so simple as to superficially compare the types and fabrics from different places. Following Haimendorf¹³⁵ Subba Rao¹³⁶ suggested that the black and red ware, being the distinctive ceramic type of the megalithic folk and their dense distribution in the Deccan and the South may strongly speak in favour of a Dravidian origin, the inescapable inference would be that the black and red ware was a Dravidian ceramic. In Bikaner in Rajasthan a plain variety of black and red ware was found associated with the painted grey ware. This would imply an archaeological evident of the coexistence of the Dravidians and Aryans in the primary habitat of the Aryans in

India. Subba Rao further argued that the Dravidians should have moved eastwards and southwards and put an end to or succeeded the chalcolithic folk, meanwhile having imbibed the megalithism and iron technology and ultimately established themselves in the South.

KAMIL, ZVELEBIL¹³⁷ of CZECHOSLOVAKIA argued that the proto-Dravidians lived somewhere between Nubia and Iran from where they migrated into the Indo-Pakistan sub-continent either before the development of the Harappan civilization or together with its mature phase. The Dravidians lived together with the Harappans and used the black and red ware pottery and became acquainted with the Harappan symbols of writing, which they may have also used. Later between 1200-800 B.C. they lived with the Aryans who used painted grey ware. They moved away from their habitat lying along side the Harappans during the above period towards the east and south-east and adopted the iron metallurgy in Central India. They also picked up some of the burial practices from the Harappans or the Deccan neolithic people and the megalithic architecture from some contact with the ^{Aneam} mediterranean region.

Guru Raja Rao¹³⁸ suggested that the iron using culture with its megalithism arrived on the borders of the sub-continent and because of the great advantage of the iron technology for their economy, it was adopted immediately during the last phases of their existence by the chalcolithic people living in the

upper Yamuna basin, western and central India.

We have two strains of cultures, one is the black and red ware associated with iron as found at UJJAIN, NAGDA etc. in the Malwa region and secondly the painted grey ware associated with black and red ware and iron at Attranjikhera in the Yamuna valley and Noh near Bharatpur. He argues that every thing points to the adoption of iron in India from the Cairn Burial folk of Beluchistan, about the later half of the 9th and early 8th century B.C.

The megalithism also penetrated into India along with iron but the Aryans who are accustomed to a practice of the disposal of the dead by cremation did not like co-existence with the people who practiced megalithism. Satapatha Brahmana, XIII,8, 2 the work of the Aryans looked upon the builders of the megaliths with contempt and in despicable terms. A clash between the cults, in the above circumstances, is inevitable and the vanquished ultimately drifted towards the south with their characteristic black and red ware, iron and megalithism.

Guru Raja Rao further suggested that the reason for the non occurrence of the megaliths between Karachi and the Deccan could be the absence of raw material for construction of megaliths and manufacturing of iron tools. Secondly the black and red ware folk could not find a happy home in the midst of chalcolithic people in the gangetic basin and the centralwestern India.

The black and red ware people with a highly evolved and well advanced iron technology colonised the areas where plenty of iron ore and raw material for construction of megaliths were available. Right from the inception the black and red ware people were subordinates, first to the Harappan culture in Sourashtra and later played a secondary role to the painted grey ware folk in the gangetic valley and chalcolithic cultures in the west-central India.

Dr.R.Subrahmanyam¹³⁹ suggested that a ceremonial burial custom appears to be purely of an Indian origin or more precisely of Dravidian origin and it is likely that the people with the above characteristic have adopted a few peripheral traits which appealed to their imagination. The West Asian contacts, either maritime or other wise, must have influenced those who were already accustomed to some sort of ceremonial burial. Thus the porthole in the cist burials which was possibly a Western innovation appealed to the imagination of a section of the megalith builders, who readily adopted the same.

DAILY LIFE OF THE MEGLITHIC FOLK:-

The megalithic period of South India represents a distinctive culture, which succeeded the primitive neolithic-chalcolithic culture. Important distinctions are noticed between the two cultures, the former being mainly the work of the proto-Australoids, while the latter of the brachy cephalic groups of people. There was a sudden jump from the crude stone axe

blade culture to a vigorous and dynamic iron culture with an array of weapons, tools and finely polished wheelmade pottery. Whether it was a sudden cultural conquest or a slow evolution, the distinction is clearly perceptible,. The new culture spread rapidly and extensively in the Deccan and peninsular India and blossomed into a mode of life with basic unity.

The repertoire of the traits of the above culture is often designated as the megalithic culture and the entire span of its existence as the megalithic period. It is really a misnomer to designate a culture from the mode of burials, but our present knowledge of the social set-up during the period is so scanty that we do not have any other alternative.

LOCATION OF THE SITES AND SETTLEMENT PATTERN:

The location of the megaliths depended upon geological and climatic conditions. The burials are invariably noticed over rocky high-grounds unfit for cultivation and in close proximity to hillocks or an irrigation tank. The needs of cultivation might not have dictated the situation of the burials as presumed previously, but, the availability of raw material at hand for building such elaborate monuments might have been the main inspiration. The megalithic burials at a few places noticed in close proximity to the irrigation tanks or perennial rivers and arable lands should not lead us to presume that they were agriculturists. No where in the vicinity of the burials or the

irrigation tanks, their habitations were noticed. They lived far away from the burials but carried their dead to a place where plenty of stone was available. There is no evidence to show that they have cultivated the arable plains in the vicinity of their burials. Besides the raw material for the tombs, the availability of iron ore and other geological factors might have had a definite bearing on the location of their colonies.

In many cases no habitation was found near a burial site. The burials at Kanukula near Sultanabad were situated over plains of red sandy silt which is fertile for dry farming. The passage chamber tombs at Peddamarur lying over a rocky mound are 3 km. away from the habitation. There is no irrigation tank nearby, but the river Krishna is about a kilometre away. Even at Uppalapadu where many hundreds of megalithic tombs exist, no habitation was noticed. At Kolakonda in Warangal, the cemetery is situated over fertile plains of red soil, which is now under active cultivation. The habitation pertaining to these burials is traced about 3 km. away, situated between a granite hill and a rivulet. At Polakonda, in Warangal district, the burials are situated over plains of sandy silt and about 1 km. away from the habitation. Sundara observed that it was not clearly borne out by the available evidence that these people clustered near some water flowing hilly valleys for the purpose of rising irrigational tanks.
¹⁴⁰

ARCHITECTURE:Domestic:

Our knowledge of their domestic architecture is restricted to the evidence supplied by the excavations at a few habitation sites. Mention may be made of Brahmagiri, Sangana kallu, Maski and Kumattur. In the Karimnagar region, we have evidences from sites like Peddabankur, Kolakonda, Polakonda, Budigapalli, Yeleswaram and Peddamarur. No where permanent structures were noticed.

In Hallur¹⁴¹ a part of lime plastered floor was discovered in the overlap phase. At Brahmagiri¹⁴² and Maski¹⁴³, no stone walls were found associated with this culture, occasional post holes indicate timber construction for domestic buildings. In the excavation at Payampalli¹⁴⁴ the floor of a house was made up of stone chips covered with morrum and plastered with lime. Occasionally a rubble flooring was also provided at the periphery of the house. The plans of the buildings were generally either circular, oval or oblong and the house consisted of a single room, but in one case two rooms.

(Pl 10 a)

At Peddabankur a number of elliptical structures exposed in the lowest strata, are assigned to the megalithic period in view of the associated characteristic finds such as pottery, beads, iron objects etc. About 10 mt. away from a Satavahana brick enclosure No.II towards north, an elliptical rubble structure with a single entrance of 1.15 mt. breadth and facing north was exposed. The orientation of the structure is

in the east and west direction and measured 10.35 mt. long and 7.65 mt. broad, including the thickness of the wall which is 40 cm. In the middle are four circular rubble basements, each 50 cm. in diameter. Also in the western end, inside the building, there are four more circular basements.

One more elliptical structure noticed inside the 3rd Satavahana brick enclosure, not related to it, measured 10.25 mt. long and 5.25 mt. broad with a south facing one meter broad entrance. The flooring in front of the entrance was rammed with hard morrum to avoid slush. Many such elliptical buildings were discovered in the coarse of excavations at Peddabankur which must have been used for both religious and habitation purposes.

The recently conducted excavation at Peddamarur revealed, in all, six habitation levels. These levels from the earliest to the end of the 4, were found to be coeval with the megalithic phase. The post-holes noticed in many trenches may indicate the nature of construction of the residential houses during the period of the earliest occupation. The houses must have had only mud walls and covered by some thatched roofs supported by wooden posts. Notwithstanding it is interesting to note that though, plenty of shale slabs were available and there is evidence for their knowledge of its quarrying as shown by the cist burials where mostly shale slabs were utilised, the same was not used for either the walls or even to pave the

floors, which were rammed with the earth only during the second phase. In the third phase they were paved with shale slabs and we find a little more development in the fourth level when the floors were rammed with kankar and then paved with shale slabs. Even during the succeeding Satavahana period, the shale slab was used only for enclosure walls. No plans of houses raised with either stone or brick are noticed.

SEPULCHRAL ARCHITECTURE:

As in all the early cultural contexts, the geological factor has a definite bearing on the megalithic constructions. With the knowledge of iron technology and its functional application for all diurnal activities quarrying of stone was a recurrent activity. The megaliths were invariably built of locally available stone and never transported from far away tracts. When granite was not available for erection of boulder circles they made use of conglomerate or shale slabs. In the lateritic regions, they carved underground cells for burying their dead. When no suitable stone was available, they made use of terracotta urns. The entire burial site at Tenneru consisted of only sarcophagi burials in the shape of bath tubs. But at Agiripalli the granitic cist slabs were brought from elsewhere to the burial site. The locally available charnockite-khondalite was only used as cairn for packing.

The huge capstones and massive stone blocks used for alignments or menhirs may indicate organised mass manual labour for transporting and hoisting them.

ECONOMY:-

Agriculture and to a lesser extent hunting were the main bases of their economy as attested by sickles and ploughshares. Various scholars have suggested that the megalithic folk were responsible for the introduction of advanced methods of agriculture based on irrigation. Most of the burial sites are noticed in the proximity of large irrigational tanks as at Budigapalli, Torruru, Kanukula, Kadambapur, Polakonda, Rajagopalpetta, Ramunipatla and Kethireddypalli. These tanks must have supplied drinking water to their house-hold and as well for sustaining their crops. It appears rice and ragi served as their staple food, as noticed at Hallur¹⁴⁵, Coorg¹⁴⁶ and Kunnatur¹⁴⁷. Hunting supplemented their food supply as indicated by the equipment such as the arrow-heads, spears, lances, javelins etc. They domesticated a variety of animals such as sheep, goat, swine, fowl, rat, tortoise, cattle etc. They resorted to roasting of animals for consumption. The carcass was thrown in open fire which cooked the flesh and roasted the bones. Some times the cattle and the sheep were probably killed as offerings. In Pochampad¹⁴⁸ and Yeleswaram¹⁴⁹ many bones of the above species were found in the burials.

The food habits of the megalithic folk at Peddabankur demonstrated that cattle mainly formed part of their diet. The dog, wolf, hyena and horse were known to them. Their knowledge of horse and its use are well attested. The skeletons of horse were found in their burials at Pochampad and Muktyala

and may indicate that the animal had a special place in their daily life. Many contemporary paintings depict the horse with riders. In a painting from Budigapalli the figure of a horse has stripes over the body like a zebra. The figures of bulls in paintings, in terracotta(Pochampad) and its skeletal remains in habitational sites are proofs that it was regarded as ~~is~~ a sacred animal. Bison or buffalo was possibly used as draught animal besides a source of milk.

Pottery was the other important adjunct in their daily life. It comprised mainly of 4 types of fabrics; the red and black, the all black, red and matt red or coarse red. The vessels of these fabrics are mainly of two varieties, highly burnished and un-burnished. The black and red ware vessels were produced by a technique of probably inverted firing. Most of the pottery was wheel made, while the sarcophagi were hand made. The black and red ware, the all black ware and red wares are usually made of very fine, levigated clay. But when they are kept under wet conditions for a long time, they usually wither away. Particularly this is the case with all-black wares possibly due to illfiring. The texture of most of these vessels appear uniformly grey. Typological distinction between the domestic and sepulchral ceramics is commonly noticed as also many regional variations in the burial pottery. The gourd shaped flask is common in the north-western parts of Andhra Pradesh, which is totally absent

from the other regions. The funnel shaped lid is a common type but they are sometimes rounded or sometimes truncated. The commonest types are dishes, ring stands, globular vases, bowls, carinated bowls and such others.

Some post-firing scratches of linear designs called graffiti are found in the interior or exterior of the pottery. The significance of the graffiti can not be satisfactorily explained. They were probably incised with a pointed instrument on the pot surface after the pots were fired. They occur on different varieties of the pots, associated with burials or habitation. Foote¹⁵⁰ suggested that they represented the ownership marks. The practice of scratching the individual graffiti on the pots to be suspended to the palmyra trees for drawing out toddy is still in vogue in the gouda community in Andhra Pradesh. But Yazdani¹⁵¹ collected as many as 131 such marks and linked the origin of the Brahmi script with them and further identified several of the marks to the Etruscan alphabet and also showed some similarities with the signs used by Cretans, Aegeans etc. Lal¹⁵² proved in his recent study that 89 per cent of the megalithic graffiti marks go to the chalcolithic and Harappan times which included some alphabets and auspicious symbols such as Swastika the endless loop, square with loops at the four corners and endless triangles. Most of the auspicious symbols continued in the Satavahana and later periods.

IRON OBJECTS AND TECHNOLOGY:

The iron objects were used for agriculture, hunting and day to day household needs. The evidence of iron smelting is provided by enormous deposits of iron slags. Number of ancient iron working spots were located in Karimnagar region at Regonda, Tellakunta etc. At Tellakunta in Peddapalli taluk round stone structures with plenty of slag and nodules of calcium carbonate noticed at the top of some hills is a clear proof of ancient iron smelting. The entire hill range is scattered with iron ore. Below one of these hills is a huge tank bunded up for storing water to be used for iron smelting. At Yopaldevpadu there are several mud furnaces to a height of one to one and half meters with blast holes with diameters ranging from 15 to 20 cm. all along the bank of the river Krishna on the water edge. A thick layer of calcium carbonate over some of these furnaces and iron slag nearby may indicate that these were used as blast furnaces.

Munn¹⁵³ has suggested that the pre-historic man in peninsular India had no alternative, but to use fairly high grade iron ore for his hearth-stones. He believed that iron technology has developed indigenously but was not transmitted to India from Egypt or elsewhere. He suggested that the constant play of carbon monoxide gas on the iron stones used for kilns for burning pottery etc. would in course of time have the effect of making them malleable and thus, he believed, would be the most probable means of discovery of iron smelting.

Iron ore is extensively found in various parts of the state, in almost all the formations from Dharwar upto Deccan trap laterites. The local iron and steel industry of Nirmal in Nizamabad district assumed importance even during the proto-historic times. The iron stone found in Armoor is of high grade and the blades made of Konasamudram steel was once famous for their strength. The Karimnagar region was most probably visited by the Persian traders at the time of VOYSAY for this steel as the Indian "Wootz" was known through out the world. Iron ore extensively occur in the ferruginous quartzites in Armoor¹⁵⁴ in Nizamabad district; Nirmal and Laxettipet taluks of Adilabad district. Broad stretches of Chikiyala bed in Sirpur taluk of Adilabad district constitute an extensive source of iron ore. Local smelting of iron is still carried on in the villages in the neighbourhood of Chikiyala iron hills.

ORNAMENTS:

The ornament repository of the period includes beads, bangles, rings, ear ornaments, diadems of various metals. The beads were made of different materials, terracotta, semi-precious stones like carnelian, jasper, agate, quartz-crystal and other material as shell, horn, ivory, gold, silver, copper etc. and rarely glass or paste. The annular terracotta beads with a big perforation in the middle are universal in the Karimnagar region and elsewhere as at Pochampad, Kedambapur,

Budigapalli and Kesarapalli etc. Apparently, these could be used as ear ornaments rather than as beads. At Peddamarur beads of etched carnelian, rock crystal and glass are found.

Many bottom cut-out conch shells noticed at Kadambapur near the lower arms of a skeleton were obviously used as bangles. Some of the shell ornaments found among the megaliths are similar to those in use among the Angami Nagas and other Naga tribes inhabiting the Naga Hills district of Assam. This similarity led Hutton¹⁶⁵ to believe that the Nagas contain an element which migrated from South India. Two gold spiralled wires on either side of the skull also at Kadambapur may show the poverty of skill in making ornaments with precious metals and also their availability.

ART AND SYMBOLS:

The artistic sense of the megalithic people is well displayed in many of the rock paintings. I firmly believe that the recently discovered paintings at Budigapalli, Regonda, and Kethavaram and the rock bruising at Mudumala might be the works of these people on several grounds.

The paintings at Budigapalli consist of many horse riders, one of these horses looking like a zebra. Behind these horse-men there is a standing figure carrying a spear in his right hand and the left hand kept in akimbo.

In the group noticed at Regonda two little men ride a disproportionately big horse. There are also tridents bisecting a circle below and simple tridents without circles. Several

such tridents bisecting circles below were indented on the orthostats of some megalithic cist burials at Chagatur. Further, at Mudumala village in the Mukthal taluk of Mahboobnager district where the existence of alignments was reported, the rock brusings contained many identical figures of tridents on circles besides linear representations of a Mother Goddess and a bull. An auspicious symbol, the endless loop or knot could be seen on the Chagatur cist burial. The endless knot (Pl 5d.c) was first noticed on a Harappan seal¹⁵⁶ of the late period. A copper tablet with a similar symbol was excavated by Mackay¹⁵⁷ from DK. Area of Mohenjodaro (D. Section(2)). Coming to the historical period an identical symbol occurs on a terracotta stamp at Taxila¹⁵⁸ ascribed to the early Christian era. The same intertwined knot design appears during the rule of Rashtrakuta kings in Gujarat region.¹⁵⁹ The second symbol is a square with the intersecting lines at the corners terminating in loops. In a button-shaped seal of garnet found at Peddabankur the symbol is found with an inscription reading 'KA MA SA' in the typical Asokan Brahmi characters.

An analogous symbol was incised over a red ware globular pot recovered from a megalithic cist burial at Kadambapur. Interestingly the same is found over a painted lustrous red ware pot at Rangapur¹⁶⁰ and a black and red ware pot at Navdatoli¹⁶¹ both in the chalcolithic context. The

Navadatoli specimen has two squares with loops at the corners projected one over the other, so that the loops of the one sandwiches between the two loops of the other, thereby consisting of 8 loops in all. Coming to the Karimnagar region the above two symbols are noticed in the rock paintings at Kethavaram in Kurnool district.

In all likelihood, the so called Ujjain symbol with four circles connected by a cross, also a Navdatoli pot design, must be identical with the above symbol. The Ujjain symbol was sometimes identified as representing four oceans connected by a cross. Then what would be the meaning of the eight circles of loops?

In Sumerian mythology we find mention of four directional winds. It is more likely that the circles represent the four quarters but not the oceans and the eight loops may represent the eight quarters presided over by the eight Dikpalas such as Indra, Agni, Yama, Vayu, Varuna, Niruti Kubera and Isana. The above symbol is still in vogue in some parts of Andhra Pradesh decorated as Rangavalli especially at the spot where at Hindu marriage is held. It may be a symbol to invoke the eight guardian angels mentioned above.

The third symbol, a trident with a long shaft bisecting a circle below, as already remarked, was found in the rock paintings at Regonda, the rock brusings at Mudumala and over

the megalithic cist burials at Chagatur. At Peddabankur the symbol was stamped on many red ware pots in the megalithic and later levels. In the Regonda type the trident bisects a circle below and installed over a box-like pedestal, still below the circle. The symbol noticed on Peddabankur pots consists of a trident, the side prongs curving inwards and having terminals like arrow-heads. The central prong is short and looks like a barbed arrow-head, the barbs projecting downwards on either side of the shaft. The central prong has a circular pellet in the middle. The circle below the trident metamorphosed into a circular pellet exactly in the middle of the barbed arrow-head. Sometimes the pedestal is decorated with stepped mouldings.

COINS:

Mention here may not be out of place of the coins found in Wheeler's Chandravali¹⁶² excavations, two of them being of silver, of which one is a Roman Dinarius and the other a rectangular punch-marked coin. Out of the remaining coins 43 were attributed to the Satavahana dynasty, while the 10 remaining coins to the feudatories of the same dynasty. The excavation exposed altogether 13 layers. Layer 13, 12 and 11 were attributed to the megalithic culture and layers 10-3 to the Andhra culture. The coins belonging to Yajna Satakarni, totalling 3 were found in strata 5 and 6. The coins of Sadakanakalalaya Maharathi come from strata 7 to 9, below the stratum assigned to their overlords.

There are some uninscribed coins recovered from strata 9 to 7, many of them from middle level that is layer 8. These coins have on the obverse a trident with a circle below and two dots on either side of the circle. The reverse has a symbol of an endless knot, as found in the megalithic context elsewhere, identified here as Srivatsa or Naga symbol, as a trident with a circle below and two pellets on either side and on the reverse an 8 arched hill crowned by a crescent.

The so-called Nandipada symbol on the obverse and the looped design identified as Srivatsa are found very commonly in the megalithic rock paintings and rock brusings. These coins were found in the lower levels than either of the Satavahana or their feudatories or of the punch-marked coin. To quote the author¹⁶³ himself "It is further worth noting that of a total of seventeen (17) uninscribed coins from the deeper layers 7 to 9 which also yielded the majority of the Maharathi coins". Thus the uninscribed coins are definitely earlier than the above two, and may belong to the megalithic period. Coins bearing the legend "Maharathi Madhariputa Sivala kura" and "Kalalaya Maharathi" were found in the Kolhapur district of Maharashtra.¹⁶⁴ Thus during the megalithic period, atleast later part of it, this region including the find spot of the coins, were ruled by Maharathis or Mahathalavaras.

RELIGION:

We are still in a lurch regarding the religious beliefs and objects of worship of the megalithic period. Guru Raja Rao¹⁶⁵

most ingeniously suggested that the occurrence of trident or 'trisula' and the sulam the spike like object in the megaliths have acquired a religious significance among the later Dravidian speaking Hindus of South India. The trident is invariably associated with Siva and other deities like Durga etc. The single pronged spike, or javelin is very similar with the "Vel" the favourite weapon of Muruga or Skandha, another popular Dravidian deity.

In the rock brusings at Mudumala there is a figure of probably Mother Goddess with hands outstretched and upraised and the legs stretched apart. This figure may be the fore runner of the Mother Goddess figurines of terracotta found in the Satavahana and later levels. The Mother Goddess figurines of the Ikshvaku period at Nagarjunakonda and Yeleswaram are similar to the above. Many Mother Goddess figurines found at Peddabankur are also ascribed to the Megalithic period. Interestingly none of the excavations in South India at the early historic sites yielded any object comparable to a Siva linga which may lead to the surmise that worship of Siva in the form of Linga was a late practice.

The orientation of the megalithic burials either in the north-south direction or east-west direction is a positive indication that the people were sentimental about the directions and they must have ^{been} worshipping the Ashtadikpalas. This view is corroborated by the occurrence of a terracotta buffalo figurine luted to a sarcophagus at Peddamarur, where all the

cists with passages were oriented towards south. Buffalo is considered to be the vehicle of Yama, the God of Death whose antiquity can be traced to the Rigvedic times.

T.N.Ramachandran¹⁶⁶ suggested that the Pasupathi seal of Mohenzodaro is the embodiment of the Mahisha¹⁶⁷ as well as of Mahadeva. In Rigvedic times the Nahisha was considered to be the most superior than all the animals but later displaced by the lion in the Puranic age. The horse skeletons found in the megalithic burials may indicate the prevalence of Vedic sacrifices such as Ayvamedha, etc. At Muktyala near Jaggayapet the skeleton of a horse was found buried in a passage chamber and its owner in the main chamber. Sankara Sastry who excavated this burial suggested that it may be a case of Aswamedha sacrifice.

In one of the cist burials at Peddamarur in all black ware dish has a stamp of a solar disc with a radiating circle in the middle enclosed by tongues of flame inside two concentric bands. This may indicate that they worshipped the Sun. The sarcophagus at Sankhavaram in Kurnool district resembled a ram which was considered to be the vehicle of Agni, the guardian of south-east. In Meg III at Peddamarur a red ware medium sized vase was placed exactly at the north-east corner. The pot has 3 perforations one at the top and 2 below, and if inverted it would resemble the visage urns noticed in Swat (Gandhara) Valley graves. The north-east corner presided over

by Isana is considered to be the place where Lakshmi resides (Lakshmisthana). As such the visage urn in the burial may symbolise a Mother Goddess.

RACIAL FEATURES:

Many of the human remains from the Megalithic burials have been subjected to anthropometric studies. The human remains from Brahmagiri¹⁶⁸ came from five cist burials and one pit circle, the later yielding 3 skeletons. According to Sarker the Brahmagiri megalithic crania reveal an autochthonous Australoid type and more or less medium statured mesocranial type which is designated as Scytho-Iranian.

At Maski¹⁶⁹, also studied by Sarker, the human remains were distinguished as meso-brachycranial type similar to the Brahmagiri crania and long-headed type with thick and heavy bones and larger cranial capacity which appears to be similar to the Al Ubaid type and which has also been found among the Lothal remains. A third type was characterised by smaller cranial dimensions and lesser cranial capacity which seems similar to the autochthonous Australoid type.

RAIGIR:

Recently Kennedy studied 6 fragmentary skulls excavated by Hunt and now lying in the British Museum, London; they indicated a Mediterranean physical type.

YELESWARAM:

Gupta and Datta¹⁷⁰ studied 6 skulls and long bones and later Sarker examined 13 skulls (9 belonging to megalithic

period). The presence of brachy-cranial element in these remains has been recorded as an indication of Scytho-Iranian affinity. They also correspond with the Sialk-brachy-cranial Group-IV.

TENNERU:

The excavation at Tenneru was conducted by Prasad and crania examined by Bhownic and Ghosh¹⁷¹ of the Department of Anthropology Calcutta University. Of the four skulls examined one was that of an immature female and the remaining three appeared to be those of adult males. One skull out of the adult group was identified as brachy-cranial and three skulls belong to dolico-cranial group, only one having hyperdolico tendency.

CHRONOLOGY:

Mortimer Wheeler¹⁷² suggested that the megalithic culture could be dated between 200 B.C. to circa 50 A.D. In arriving at this date range he considered the following points.

1) The preceding stone axe culture as represented by a late urn-burial overlapped into the earliest layers of megalithic culture.

2) The terminal date was fixed by the commencement of Andhra Culture dated on the basis of Roman coins, rouletted ware, sherds etc.

3) That the duration of megalithic culture was determined by 3 to 4 feet thick habitational accumulation for which he has allowed a time lapse of about 2 centuries.

From a cist grave at Sulur¹⁷³ in Coimbatore district in Tamilnadu a bronze coin was recovered and identified by Allan as Eran coin minted C. 3rd century B.C.

A coin of Roman emperor Augustus (27 B.C. to A.D.14) was found from a megalithic grave in Coimbatore district.¹⁷⁴

Alexander Rea¹⁷⁵ found 17 urn-burials below a subsidiary stupa at Amaravathi which in relation to the main stupa has been dated to C. 200 B.C. But the date of the main stupa has been pushed back still earlier on the basis of some fragments of an Asokan inscribed pillar.

A gold coin of Roman Aurel issued from Constantinople and assignable to the 4th century A.D., was found from a barrow in the Nilgiris.¹⁷⁶

We thus now have a date ranging between 3rd-4th century B.C. and the 4th century A.D.

We also have a set of Radio-carbon dates as follows:-

Name of the site	T.F.No.	Age(half value 5730)	Dates
1. Hallur ¹⁷⁷	673	2905	100 955 B.C.
2. -do-	570	3065	105 1105 B.C.
3. Payampalli ¹⁷⁸	350	2330	105 380 B.C.
4. Kotia ¹⁷⁹	319	2200	105 250 B.C.
5. Halingali ¹⁸⁰	685	2030	100 80 B.C.

The evidence from the Tekwada¹⁸¹ burials in Khandesh is very significant. These burials have been assigned to

Bahal I-B period on the basis of the funerary equipment recovered from them. The excavator traced 2 elements which are significant. The first is the presence of a Jorwe fabric pot in the Tekwada burials and the second is a conoid pot in the megalithic black and red ware with graffiti. These two wares represent two distinct cultures; one the chalcolithic and other the megalithic but no megalithic burials were known in the vicinity of Bahal or Tekwada. Thus the Bahal excavations indicated a cultural link-up of the megalithic and the chalcolithic elements, and the antiquity of the megalithic culture was pushed back. The Late phase of Jorwe culture could be assigned to the earlier half of the 1st millennium B.C. The existence of the megalithic element at Bahal Tekwada in the region of East Khandesh was further confirmed by find of megalithic pottery from the surface explorations at Banjala (IAR-1960-61).

The evidence from Vidarbha region, which is contiguous to north-western Andhra Pradesh is very significant. The excavations at Pochampad and Kadambapur have proved that the burial furniture is more in conformity with that of Vidarbha. The excavation of stone circles in eastern Vidarbha at Takalghat, Khapa, Junapani and Mahurjhuri and evidence from the habitational sites at Kaundinyapura, Paunar and Pauni gave further evidence to the extent and date of the megalithic culture in that region. The micaceous red ware which was common in the first habitational levels at Paunar, Pauni, Takalghat and Kaundinyapura

as also in the stone circles at Junapani, Khapa and Mahurghuri, indicate that there was a large-scale colonization by the megalithic folk in eastern Vidarbha in the pre-N.B.P. period.

The megalithic habitation at Takalghat¹⁸² was divided into 3 phases. The upper horizon of the mid-phase was dated between 555 B.C. and 597 B.C. This would push the 1st phase of occupation still further back by about a century or more, than the first megalithic occupation at Takalghat could be assigned around 7-8th century B.C. if not earlier. Thus it became apparent that whereas in western Maharashtra and Khandesh the Jorwe culture was in vogue, the Vidarbha region was under the cultural sway of the megalithic people in the first millennium B.C.¹⁸³ Analysing the above information we may conclude that megalithism had a lease of more or less a thousand years.

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PART III

CHAPTER V .. The Early Historical Period

EARLY HISTORIC PERIOD

Introduction

Besides the already discussed protohistoric sites the Karimnagar region is studded with a large number of early historic sites. Intensive explorations revealed early historic mounds almost at every alternate village. Evidently the region, comprising the districts of Karimnagar, Warangal, Nizamabad and Medak was thickly inhabited during the Satavahana period and it may be possible in the near future to find out the political nucleus of this region. This view is strengthened corroborated by the accounts Yuan Chwang who noted that he travelled southwards from Kosala for about 150 miles (900 Li) to An-to-lo¹ or Andhra, the modern Karimnagar region with its capital 'Ping-Ki lo' which M. Julian transcribes as Vingkhila. But Alexander Cunningham identifies it with Elgandal² about 8 km. from Karimnagar (Ofcourse, this was the position of the region in the year 639-40 A.D.). Elgandal has now a late medieval fort at the top of a precipitous hill. Nowhere in the vicinity the traces of an early historic town could be seen.

As we have already seen in the earlier chapters that the Dravidians who possessed a high degree of civilization might have drifted to South India and settled down there permanently. The name of South India as Dakshinapatha occurs for the first time in the Rigveda which referred to it as the home for the exiled. It was beyond the frontiers of the Aryan world. Dakshinapatha was mentioned by Boudhayana coupled with Sourashtra. In the Nalopakhyan of the Mahabharata Dakshinapatha

was placed beyond Avanti (Ujjain) and the Vindhya and to the south of Vidarbha and Kosala.

The janapadas situated to the south of Vidarbha (Vatsagulma) and South Kosala were known as Assaka and Mulaka. We find from Assaka Jataka³ that a king by name Assaka was ruling in Potali under the kingdom of Kasi. According to Suttanipatha⁴, Assaka was situated on the banks of Godavari. In Chulla Kalinga Jataka⁵, it is stated that when Kalinga was reigning in the city of Dantapura in the Kalinga country, Assaka was the king of Potali in the Assaka country. Evidently both the regions were once contiguous. The Assaka janapada existed in the time of the monarchs Renu and Dhataratha (Dharita Rashtra). It was ruled by Brahmadatta, king of the Assaka as a contemporary of Satabhu, king of Kalinga, Vessabhu king of Avanti, Bharata king of Souvira, Renu, king of Videha, Dhataratta, king of Anga and Dhataratta, king of Kasi.⁶

In Vayupurana⁷ Asmaka and Mulaka were mentioned as scions of the Ikshvaku family. The Mahabharata speaks of the royal sage Asmaka (Asmaka name rajarshi) as having founded the city of Podana. Panini⁸ makes mention of Asmaka which was in the interior of the Deccan watered by the Godavari. The commentator Bhattacharmin identifies Asmaka with Maharashtra.

We learn from the Nasik record of queen Goutami Balasri that her son destroyed the Sakas, Yavanas, Pahlavas and that his dominion extended not only over Asika, Asaka (Asmaka)

on the Godavari and Mulaka but also over Surata, Kakura Aparanta, Anjpa, Vidarbha and Akara Avanti. It is believed that the Mulaka country extended in the south eastern direction of Andhradesa. Parts of Cuddapah and Guntur districts and the Medak district are referred to in the inscriptions and the Telugu literature until the 15th century A.D. as Mulakanadu or the country of Mulakas⁹ & Rayachaudhuri¹⁰ identified Potana or Potali with Bodhan in Nizamabad district, but this identification may not be correct. Phonetically the word Podana or Potali is nearer to Paithon. Moreover it was mentioned specifically that it stood on the banks of Godavari whereas Paithan actually stands on the river. In Karimnagar region there is one village by name Mulugu, and its namesake is a taluk headquarters in Warangal district. A set of Andhra brahmins who drifted to the coastal region from Telangana in the past are still known as Mulakanadu brahmins, a sub-sect of Telanganyas. It is evident that Paethan was the real Potali or Podana, the capital of the Asmaka country and in all probability the present Karimnagar region was known as Mulaka region.

In the fourth century B.C. the Magadhan empire was greatly expanded under the powerful but unpopular dynasty of the Nandas, who according to puranic accounts conquered all rival monarchs and became the sole emperors of the whole of India. The inclusion of Kalinga in the Nanda empire appears to be confirmed by the famous Hathigumpha inscription of Kharavela

who ruled over Kalinga in the 2nd century B.C. in connection with construction of an aqueduct. Nanded on the upper reaches of the Godavari was some times identified as Nounanda Dhera indicating the extent of Nanda power into the Deccan.

There is no evidence of the Mauryan emperors who succeeded the Nandas having undertaken wars of conquest in the south, but they succeeded to the southern possessions is a matter of fact by overthrowing the imperial dynasty of the Nandas. Jain traditions affirm that when Bhadrabahu, the last of the saints prognosticated a famine of 12 years duration, the Mauryan emperor Chandragupta abdicated the Magadhan throne and migrated to the south with the saint and his pupils. According to Plutarch, Chandragupta overran and subdued the whole of India with an array of six lakh men. Kalinga was conquered by Asoka after a terrible war in which one hundred and fifty thousand were slain and many times that number wounded. No other conquest is attributed to this great sovereign. Some parts of the Deccan may have been taken by force of arms during the reign of his father Bindusara, who, according to Taranath, destroyed the kings of the 16 towns and made himself master of all the territories between the Eastern and the Western Seas.¹¹ Asokan inscriptions were found at Maski, Koppal, Brahmagiri, Siddapura, Jatingaramesvara, Udegolam and Nittur in Karnataka and at Erragudi in Kurnool¹² district of A.P. A considerable portion of the Deccan was indeed ruled by the vice-regal princes of Suvarnagiri and Tosali(Dhouli), the Mahamatras of Isila and

Samapa and the officers incharge of Atavi or the forest country. The southern frontier of Asoka's empire did not extend much beyond the locality of the southernmost group of his inscriptions discovered at Siddapur, Jatingarameswar, and Brahmagiri. Roughly speaking it touched the line which may be drawn along 14° Lat. Many writers believe that after the death of Asoka and with the dismemberment of Mauryan empire, Satavahanas established a monarchy over the entire Deccan, and seized the imperial throne of Magadha which they held for some time.

There is a wide difference of opinion regarding the total duration of the Satavahana rule. Among the puranas the Matsya mentions 460 years, the Vayu, 411 years, the Brahmanda, Vishnu and Bhagavata, 456 years. There is a general statement in the Vayupurana that the Andhras would rule for 300 years. Smith suggested that the Vayupurana reckons the duration of the dynasty from the fall of Kanvas while the Matsya and Vishnu mention the entire dynasty. In support of this view he records the dynastic totals of 45 years for the Kanvas and 112 years for the Sungas, added to the 300 years of the Satavahana total of the Vayu would yield the Vishnu total of 457 years. There is a general agreement among the puranas that there were 30 kings who ruled for 456 years. Rayachaudhari¹³ thinks that according to the tradition preserved in the Vayu there were 19 kings who ruled for 300 years while according to another tradition there were 30 kings who ruled for 400 years as the Matsya says. He quotes the opinion of R.B.Bhandarkar who holds that the longer list

included the names of the princes belonging to all the branches of the so-called Andhra Bhritya dynasty and that the longer period represents the total duration of the reign of all the princes belonging to several branches. The period of 300 years and 19 kings given in the Vayupurana and hinted at/the Matsya refer to the main branch. Raya Chaudhuri concludes that the Matsyapurana which mentions 30 Satavahana kings includes not only the main branch but also the Kuntala line. If the main line of the Satavahana kings consisted of only 19 princes and if the duration of these was 3 centuries, there is no difficulty in accepting the puranic statement that Simuka flourished in the 1st century B.C. and his dynasty ceased to rule in the northern Deccan in the 3rd century A.D.

A large number of Satavahana coins have so far been recovered from many parts of the Deccan. But none of these coins represented Simuka, the founder of the Satavahana dynasty. Recently about 6 coins attributed to Simuka were presented by one gentleman Narahari to Parabrahma Sastry¹⁴, who identified them as belonging to Simuka Satavahana. The coins have on the obverse an elephant to the left with trunk hanging down and traces of Ujjain symbol and the legend as "Siri Chimuka Sata" and on the reverse a Ujjain symbol with double circles and a crescent on one orb. Parabrahma Sastry identified Chimuka of these coins with Simuka of the Nanaghat label inscription and the founder of the puranic list of the Satavahana dynasty. Palaeographically these coins are assignable to the last part of

the 1st century B.C. In the same paper Sastry identified a few more coins with legends Go Bhada Sa as that of Bhagabhadra, the 5th Sunga king. The third variety belonged to Samagopa which were identified as Samabhagha or Bhagavata, the 9th member of the Sunga dynasty. Therefore it may be reasonable to believe that the Sunga kings of the Vidisa branch had their authority over the Andhra country, the early Satavahanas being their subordinates.

Except these coins we do not have any other evidence to show that the Sungas ruled beyond Vidarbha and a stray case may not help to take a final decision. However the find of the coins attributed to Chimuka in the Karimnagar region is very interesting and it may help us to some extent to trace the origin of the early Satavahanas in the Karimnagar region.

SITES AND THEIR DISTRIBUTION:

As noted in the introduction, the whole of Karimnagar region is marked by a number of early historical sites almost in every alternate village. It is really puzzling why the early Historical sites were mainly concentrated in the Karimnagar region. It is likely that the political nucleus of the whole or a part of the Deccan must have been situated in the region, secondly the population during Satavahana period must have increased manyfold, thirdly it ^{might} ~~may~~ be commercially ^avery important region traversed by the ancient trade routes and fourthly, agriculture being the main occupation of the people they found a congenial abode in an area marked by arable,

alluvial black soil plains.

Unlike the settlements of their predecessors, the people during the Mauryan and later periods, did not particularly select sites in the vicinity of major rivers. They spread far and wide into the interiors in quest of the arable land. But there is no evidence of irrigation. Probably dry crops such as maize, jowar and ragi besides rice formed their staple diet and supplemented by plenty of fauna and domesticated cattle. They already perfected the making and usage of well burnt brick and that is why they were not particular to settle in the vicinity of hills. The bricks used are as big as 50 to 55 cm. long and 25 to 28 cm. broad. It was so well burnt, that some pieces were actually fused by intense heat of the kiln and are as hard as stone. As we have noticed a perceptible change from the neolithic to the megalithic, we find a similar phenomenon at the inception of the early historic period.

SETTLEMENT PATTERN:

Kondapur:

Kondapur is situated in Medak district and is about 70 km. north-west of Hyderabād. The village is conspicuous on account of several historical mounds close by, one of which was excavated in the past by the Department of Archaeology and the erstwhile Hyderabād State. The excavated mound is adjacent to a small stream, feeding a small tank nearby. It has at an altitude of 1788 ft. above M.S.L. and 20 to 30 ft. above the surrounding ground level. Excavation at this spot ⁱⁿ 1940 revealed some

The
 religious and secular buildings of Satavahana period which are architecturally not very imposing nor even beautiful but quite efficient and skillful though somewhat plain.

PEDDABANKUR:

Peddabankur (18.30 N. Lat. 79-30 E. Long) is presently a small village in the Peddapalli taluk of Karimnagar district. The historical site with an extent of 30 hectares is situated adjacent to the Karimnagar-Peddapally main road, which almost intersects the site in the north-south direction. The site is bounded by a nullah, as ancient as the cultures represented there known as Hussaini Vagu, about half a kilometer towards the west and one kilometer towards the south. It is generally dry in summer, yet the people draw water by scooping several pits in the bed. The surrounding hills are formed of granite and quartz occasionally traversed by dolerite dykes. The secondary minerals such as carnelian, jasper, chalcedony, crystal and quartz were freely available for the use of the ancient tool and ornament makers. The site and its surroundings are covered by alluvial blacksoil overlying disintegrated granite morrum. The black soil cover denuded at few places has exposed the granitic morrum capped by a microlithic industry. The excavation conducted by the Department of Archaeology and Museums at this place for several seasons under the supervision of the author revealed many brick structures, cisterns, wells and elliptical structures, besides an array of antiquities such as pottery,

iron, copper and terracotta objects which included a big collection of punch-marked silver, Roman dinari and Satavahana coins.

DHULIKATTA:

Dhulikatta also situated on the right bank of Hussainivagu is about 10 km. towards west of Peddabankur. The name Dhulikatta may be a corrupted form of Dhuli Kota which literally means a mud fort. The villagers know very well the existence of a mud fort which is popularly called the Kota area. It was deserted either due to a conflagration or due to the natural decay but the memories of the ancient glory still linger in the minds of the people. They have pointed out to the author some other areas in the proximity as Rajulakunta or Yenugula Cheruvu (Elephant's pond).

Peddabankur was a Satavahana village site but Dhulikatta promised to be a walled-town of the Andhras. As attested by Megasthenes¹⁶, the Andhras have possessed numerous villages, 30 fortified towns and an array of one lakh infantry and two thousand cavalry and one thousand elephants.

The historical site with an extent of 18 hectares of land is roughly 6 mt. above the plains and enclosed by mud ramparts, raised with the earth dug out from outside the fort, And the trenches formed into a deep moat. As at Peddabankur the surrounding area of Dhulikatta is covered by fertile black soil.

About a kilometer exactly to the north of the historical mound a Buddhist stupa was discovered by the author and later

excavated. It is situated at the confluence of the above ~~said~~^{and} Hussaini vagu and another nullah coming down from the north. In the vicinity, a kilometer away, is a modern village by name Vadakapura probably derived of two words - Vata , Kapura, the latter, a much familiar word during the Satavahana period. As there was no anthropomorphic representation of the Buddha at the above stupa and in the light of the Kaksha and other figures depicted on the ~~ayaka~~ slabs, the stupa may be said to belong to the Hinayana sect.

CHINNABANKUR:

The early historic mound at Chinnabankur is noticed towards the south-west of the present hamlet of Chinnabankur which is 4 km. away towards north of Peddabankur. The low mound not exceeding 2 mt. above the ground level is roughly 5 hectares in extent and littered with typical early historic pottery such as red polished, black and red and coarse red etc. The soil cover is black alluvium.

VENNURU:

The village Vennur is 2 km. away from the right bank of the Godavari river and approximately 15 km. from Anthergoan, in the interior. The village is approached by a muddy cart-track. The early historical mound about 3 mt. high above the ground level is in the middle of arable plains and mango grooves with an extent of 3 to 4 hectares. It is eroded at several places and a large number of early historical pot sherds were thrown-out. The presence of iron slag and iron ore may indicate an

Indigenous iron industry.

KAPPARAOPETA:

The village is 2 km. east of Karimnagar-Laxettipet road. In the vicinity of the village, there is a hill locally known as Munulagutta, the ascent to which is very hazardous. At the top of the hill 120 mt. above M.S.L, there is considerably spacious plain surface, marked by several early historical structures mostly of random rubble. The architectural plan of these structures is square and open towards the east. Close by these structures a few rock shelters are noticed over one of which is an early Brahmi label inscription. These rock shelters were in all probability inhabited by the Buddhist or Jain monks. The secluded place, far away from the human bustle overlooks the sandy expanse of the flood plains of the Godavari river.

KOTILINGALA:

Kotilingala, situated at the confluence of Peddavagu and the Godavari in the Peddapalli taluk, is about 65 km. from Karimnagar and 5 km. away from Munulagutta. The early historical mound with a present height of nearly 6 mt. above the plains is roughly 50 hectares in extent. It is the biggest mound so far discovered. As at Dhulikatta the mound at Kotilingala is encompassed by a mud fort with several gates opening towards the cardinal directions. The entire mound is scattered with early historical pottery, beads, bricks, querns, etc. Some of the rain gullies

which cut across the mound showed the cultural strata as thick as 2 to 2 1/2 mt. and marked by several habitational floors. Adjacent to the Godavary river bank the fort wall runs to a distance of more than 300 mt. The bricks used for the structures measured 60 to 55 cm. long and most of them were ransacked by the villagers to be utilised for construction of their houses. In fact the entire village of Kotilingala is now built with the early historical bricks. Iron slag and ore are found in plenty. Outside the fort towards the north and adjacent to the water course of the river a long line of brick structures, some of them square in plan and some rectangular may indicate the presence of a wharf. The high mud fortification protected on the east and the west by the Nullah and the river Godavari respectively and the brick structures near the water course are reminiscent of a once commercially and politically important town. It is from this place the above said coins of Chimuka, the founder of Satavahana dynasty were collected.

On one of the stone slabs arranged as a fencing wall to a field on the way to Munulagutta from Kotilingala, a few label inscriptions in the Brahmi character of second first century B.C.¹⁶ were noticed. On another sand stone pillar now lying in a paddy field about a kilometer away there is a label inscription which reads ^{as} "Nagagopinikaya" in bold double lined ornamental characters of 1st century A.D. In view of the description of the river in "Gātha Sapthasathi" and the surface finds, the site must have been one of the strong holds of early Satavahanas.

KACHAPUR:

The site is situated by the side of Peddapalli-Choppadandi road, before it takes a turn towards Kachapur. At the northern extremity of the site there are low hillocks and outcrops of granite. The soil cover of black alluvium was eroded by rain gullies which exposed the ancient potteries such as red and black, red polished and coarse red, besides profuse occurrence of brick bats. The mound also is rather low compared to other sites and is about 6 to 7 hectares in extent. Iron slag was also seen.

BODAGUTTA:

It is about 9 km. from Peddapalli and situated on the foot-hills of Bodagutta on the Peddapalli-Ramagundam road. The area comes under the revenue jurisdiction of Kannala village. Besides the typical pottery, a fragment of an elongated neck of a sprinkler was also collected. The area extends to about 5 hectares. The soil cover is brownish in colour and fertile.

BOMPALLI:

The village Bompalli is less than 6 km. from Peddapalli. The historical site is situated between two hillocks on the left side of Peddapalli-Dharmaram road and spreads to an area of about 7 to 8 hectares. The low mound is covered by blackish-brown soil and marked by ashy patches.

RACHAPALLI:

The village is about 15 km. from Peddapalli. The site is noticed on the foot hills near the way to Paidichintalapalli from Rachapalli and is about 7 to 8 hectares in extent.

PAIDIGHINTALAPALLI:

The early historical site was noticed on the right bank of Bandalavagu (near the project site) among the out-crops of granite. The soil is brown and very fertile. Exploration yielded large number of brick bats and typical pot sherds. This is also a low mound extending to about 8 hectares.

KHADEEMKANAGARTHI:

The village about 9 km. from Peddapalli is a little in the interior from Peddapalli-Dharmaram road beyond Bompalli. This soil cover is black with a spread of 8 to 10 hectares. Intensive cultivation over the site threw-up a good quantity of early historical pottery. Slightly away from the site are found a dozen medium sized megalithic cairn circles were also noticed.

KARNAMAMIDI:

The village Karnamamidi is about 16 km. from Laxettipet on the Laxettipet-Manchiriyal road near the north-bank of the river Godavari in Adilabad district. The site is on the left bank of a nullah to a height of 3 to 4 mt. from the surrounding plain. This is another extensive early historic site and spreads over 20 hectares. The eastern part of the mound revealed continuous habitation until the mediaeval times. Exploration at the site yielded profuse quantity of typical pottery and bricks etc. As the site is included in the flood plains of the river Godavari, much erosion is noticed. The soil is black with ashy patches. The river Godavari separates the Vemunur, Kotilingala sites of Peddapalli taluk from this site.

BODHAN:

The present town of Bodhan in the Nizamabad District is another extensive early historical site covering an extent about 1 km. within and without the town of Bodhan. It is no wonder that some writers believed that it was once the capital of Asmaka country known as Potali or Potana. According to Suttanipatha situated on the banks of the river Godavari which is 10 km. away from Bodhan. Except the phonetic resemblance any other early historical settlement near the modern villages as Kotilingala or Karnamamidi on the Godavari river has a better claim than Bodhan to be considered as the capital of the Asmaka country.

None the less, the settlement appears to be much bigger than any of those mentioned before. The entire town is now enclosed by ancient mud ramparts to a height of 9 to 12 mt. on the west of the village, a double fortification intervened by a deep moat. The inner fortification encloses a high mound where the historical citadel must have existed. On the top of the mud fortification the author has collected early historic ^{old} pot sherds which may lead us to the surmise that the mud ramparts were raised in the post Satavahana period or it could also be that the early ramparts were reinforced during the medieval times and in the process digging out early historical habitation.

Bodhan was also the earlier capital of the Chalukyans of Vemulavada during the reign of Arikesari II (930-955 A.D.). It may be recalled that in the recent past, an inscription of the time of Arikesari II which records the name of "Pampa" the famous

author of Kannada Bharata was recovered in the vicinity of the mud ramparts.

Unfortunately the whole of the early historical site outside the town limits was cut off and levelled for wet cultivation. Even the present town of Bodhan stands over a part of the early historical mound.

VADLURU:

It is a small village in the Kamareddi taluk of Nizamabad district and is surrounded by a mud fortification with a height of 6 to 9 mt. The mound, enclosed by the fortification, was gradually hollowed out by the villagers, abandoning only segments of the original fortification adjacent to the village towards north.

Exploration inside the fort revealed large amount of early historic pottery, consisting of rim fragments of red polished ware, dark brown ware and dishes of black and red ware, sometimes white painted concentric rings at the base inside and sherds of dull red ware lid cum bowls etc. Undoubtedly there was a flourishing early historical settlement at Vadluru from the Pre-Satavahana times and the occupation continued till the Kakatiya period. The construction of the lake adjoining the fortification towards north may be attributed to the Kakatiyas.

The thickness of the total habitational deposit is more than 3 mt. containing many ashy pits and post-holes. Typical Satavahana brick pieces were also collected.

KOLAKONDA:

Kolakonda may possibly a short form of Kolanukonda, in view of its location in the vicinity of a huge lake, 'Ramasamudram' and abutting a range of granite hills. The early historical site at Kolakonda is noticed in an area of about 50 hectares over the inclining plains between the Chinnagutta and nullah which is a tributary of the river "Maneru". Traces of early historical habitation were noticed upto the middle height of the hill. The surface collection included wares of black and red, red polished coarse red and all black. Besides, there is also a good collection of Neolithic stone axes. The entire mound to a thickness of more than 4 to 5 metres was covered by black alluvium most of which is now dug away by the villagers for manuring the fields. Only small chunks are left here and there.

A few trial trenches have been sunk by the Dept. of Archaeology under the supervision of the author at different places which revealed a deposit of the megalithic habitation to a considerable thickness capped by Satavahana. With the exception of a few post-holes no traces of permanent structures were noticed.

POLAKONDA:

The early historical site at Polakonda was noticed at the foothills of Peddagutta towards the south with an extent of nearly 10 hectares. The Dept. of Archaeology and Museums had undertaken trial excavations which revealed 3 periods of

occupation, the pre-Satavahana, Satavahana and the medieval. The pre-Satavahana phase was marked by a majority of brown ware besides black and red, black brown and dark brown wares with a mix up of red polished ware. Few post holes may indicate that house. The Satavahana phase was characterised by a brick structure over rubble foundation. In one of the cuttings a brick wall of 2 courses (each brick measuring 54 x 26 x 7 cm.) was noticed. The lower courses have a 10 cm. broad offset. The western and southern walls measured 5.10 mt. long 0.55 mt. broad, the other walls were ruined. The bricks were well burnt and consisted of a profuse mixture of sand, grass and small twigs. No husk was found. In the middle of the structure, a cistern 1.70 x 1.80 mt. was noticed. Internally it measured 85 x 75 cm. with a present depth of 60 cm. The floor was paved with brick for making it water tight. Post-holes were noticed over the walls at regular intervals possibly for erecting wooden posts for supporting the roof.

From the pre-Satavahana period there is a solitary potin coin inscribed with a early Brahmi script, datable to around 2nd century B.C. The legend is not very clear but read as "Mahatala(vara) Sivasaka (or sabha)". In the middle there is a beautiful figure of horse standing to left and on the reverse nothing is visible. In this connection it may be recalled that a terracotta seal recovered from pre-Satavahana level at Peddabankur is inscribed with a Brahmi legend reading "Mahatala-varasa Vijayasamikasa seva sabha". Some coins belonging to

Maharathi Vilivayakura, and "Sivalakura" were found in the Kondapur region in the past. It is now evident that this region was governed by Maharathis and Mahatavalaras either under the early Satavahanas or some others.

ARCHITECTURE:

FORTS

Kautilya¹⁷ in his Arthashastra envisages that a fortress known as Sthaniya shall be set up in the centre of 800 villages, a Drona Mukha in the centre of 400 villages, a 'KharvatiKA' in the centre of 200 villages and Sangmahana in the midst of a collection of 10 villages. The ruins of the early historical towns in the villages in Karimnagar region are divisible into two categories, the fortified and the unfortified. The towns or villages which are politically and commercially important were provided with fortifications. The points of difference between a town and a village were that the town was protected by a ditch and a wall while the villages were not. The town was inhabited mostly by traders in addition to the king and his appurtenances, while the village was inhabited by the agricultural people.¹⁸ The ordinary villages do not have any protection. Some of the fortified towns were noticed in the middle of the plains or sometimes abutting hills and sometimes girdled by rivers or deep nullahs.

In the Arthashastra¹⁹, we find 4 types of fortification, the water fortification (Audaka) such as an island in the midst

of a river, a plain one surrounded by low ground; a mountainous fortification such as a rocky track or a cave or desert such as a wide track, devoid of water and over-grown with thicket in barren soil or a forest fortification (Vanadurgal) full of wagtail (Khaijana) water and thickets. The material for raising the ramparts was always mud, dug out from outside of the settlement on all sides, the trenches thus excavated simultaneously serving as moats. The most important parts of a city were a moat (parikha) rampart (prakara) and gates (dvara) which served as the main defences.

The ancient sutra²⁰ literature envisages a regular town planning. The marking out of the site of the moat, the rampart and the palace formed the preliminary part of such planning. The scheme of a fortified town, according to Samarangana Sutradhara²¹ (Chapter X, 1-2) a late work, comprised the following five principal elements of defence,

1. Prakara, the surrounding walls
2. Parikha, the moats
3. Dvara, the gates
4. Attalakas, towers and the turrets
5. Rathyas, the chariot roads connecting the town with the country.

The Vastu Vidyacharyas²² or expert architects were requisitioned for testing the sites. The Artha sastra prescribes that the digging of ditches (Parikha) as the first item in the

construction of forts (Durga-vidhana). We find in Mahabharata that the city of Indraprastha was mapped out and measured in the presence of Dvaipayana Vyasa and others and that work was commenced with the digging of a series of moats, followed by the building of a high rampart, numerous gate-ways and towers (Adiparva, 209, 29-32). The moat was first built so that the earth so obtained was utilised for constructing the mud rampart (pamsu-prakara) or for moulding bricks for the city wall.

The Artha sastra prescribed digging of three moats round the fort, having an intermediate space of one danda (six feet) between each other. The Udaya Jataka (IV.106) mentions three types of moats, viz., Udaka, Kaddama, Sukha or a water moat, a mud moat, and dry moat. Panini suggests a Devapatha or passage above the ramparts. According to Kautilya²³, the wide ^{road} meat on the top of the parapet built along the line of battlement was called Devapatha. The height of the brick wall above the mud rampart is stated to be 36 ft, rising from ground level and the battlements were built above it. The Raghuvamsa also refers to Devapatha (XIII.19).

GATEWAYS:

The plan of the ancient walled cities was either rectangular or square, and provided with four gates one in the middle of each wall, facing four cardinal directions. These gateways were named after the other city towards which it opens. The naming of the city gates has continued throughout upto the



present days. The Golconda fort of the Kutub Shahi period was named as Mecca-e-Darwaja, Banjara Darwaja and Fath-e-Darwaja etc. Many gates built in the Moghul period derived the names in the above manner, such as Ajmiri Darwaja etc.

The gate-ways appear to be of the two types, the torana and the gopura. The torana was an ornamental gateway without a door. The gopura was the city gate way²⁴.

FORTS IN KARIMNAGAR REGION:

The mud fort at Kotilingala rises to a height of 6 to 9 mt. from the surrounding plains. It was enclosed by the Godavari river on the north and by the Kapparaopet vagu (nullah) on the east. The nullah takes a turn towards south at about a kilometre away, thus fortifying the town on both the east and the south. The main gate to the fort is noticed towards the south connecting a high-way. The fortification on the Godavari side was much ruined due to flooding and erosion. However a gate in the middle of the rampart was traced which served as an inlet and outlet for the merchandise. It must also have served to supply water from the river. At all the corners of the fortification there are bastions presently appearing like high mounds.

BUDIGAPALLI:

The fortification around the early historical mound appears like a bund of a tank to a height of 3 mt. from the surface. The fortress is in juxtaposition to a range of hills known as Valasagattu on one side.

DHULIKATTA:

The early historical mound to an extent of 18 hectares of land is enclosed by a mud embankment, once served as ramparts, with a present height of 3 to 5 mt. Four gate ways were traced at the four cardinal points. Out of these, excavation was conducted at the southern gate way which brought out the plan of the guard rooms, prefaced by a gate house. The plan of both the buildings is problematical, as nothing more than the foundations have survived. However it appears that the guard rooms comprised two rectangular halls with a middle pathway and with an outside measurement of 15.13 mt. north south by 14 mt. east-west. There is a gap of 4.40 mt. in the middle for the path way. While building the guard rooms, it appears large chunks of the rampart were cut off on either side of the building for accommodating the structure in the width of the rampart. The flooring inside the halls was paved with brick (56 x 27 x 7 cm.). The middle pathway was initially strengthened with rubble and veneered with morrum and silt.

The plan of the gate-house prefacing the guard rooms is uncertain as it was not found in entirety. It constitutes a broad gateway outside and cramped in the middle which again widens towards the guard rooms. The central part of the gatehouse with space sufficient only for the path way had casemates or ambush niches on either side. The only existing casemate on the west (1.20 x 0.90 mt.) was actually carved into the body of the wall. A flight of steps was provided to

the casemate. Evidently a room of such small dimensions with a flight of steps could only serve as an 'Ambush niche' to post armed guards who would not be visible to the incoming and outgoing people. At present the 'niche' appears like a 'cistern' and is filled up at a later period with coarse red conical bowls, dishes and animal bones.

The facade of the gateway must have had one or many storeys with a terraced roof, railings and pillars. Access to these storeys might have been provided with stair-cases. The depiction of the city gates of 'Kusinara' as seen in the lowest architrave of the south gateway of the Sanchi Stupa²⁵ may be a replica of the city gates during the period under review.

THE MUD RAMPART:

The rampart to a height of 5 mt. was constructed of the earth dug out from outside. Traces of the trenches which once served as moats are visible. The lowermost portion of the rampart consisted of hard yellowish morrum overlaid by a layer of black soil, ^{then} capped by another layer of disintegrated morrum. Adjoining the mud fortification inside was traced a rubble foundation, the superstructure of which is now completely ruined. This must have been a brick fortwall as the super structure and the battlements were built above it.

The height of the brick fort wall above the ramparts was prescribed to be 11 mt. rising from ground level, but we do not have an idea of the height of the brick wall at Dhulikatta.

VILLAGE SITES:

Kautilya²⁶ has stated that the king may construct villages either on new sites or on old ruins by inducing foreigners to immigrate or by sending forth the excessive population from the thickly populated centres. Boundaries were denoted by a river, a mountain, a forest, bulbous plants, caves, artificial buildings or by trees such as Salmali, Sami and Ksheera Vruksha (Cactus) etc.

The villages were marked out by their natural boundaries such as forests (vana), thickets (kathina) rivulets, hills, jungle etc. The settlement at Peddabankur was a village with no walls around. Interestingly three huge brick structures two of them measuring 30.80×30.80 mt; 30×40 mt, 100×100 ft, and a third one 60×60 ft. 16.80×15.80 mt were revealed in course of excavation. The enclosures or prakaras appear like castles and have only a single gateway either in the north-east corner or the north-west. These were evidently occupied by wealthy individual families. We do not at present have an idea about the height of these structures but they are more than 2 mt. broad. Inside these prakaras traces of houses, wells, cisterns etc. came to light. It is likely that these were occupied by groups of families. The entrances were also very broad, sometimes more than 3 mt. intended to allow vehicular traffic. They were self-sufficient units. Some enclosures have even two to three wells most of them nearer the walls. In the first enclosure a huge brick well was noticed in the middle of the northern wall, another

well cutting into the western wall and a third smaller well adjacent to the south wall. In the second enclosure there was no well inside but it was there at the north-eastern corner cut side. The used waters of the well were led out to a soak pit lined with terracotta rings.

ROAD PLANNING:

The roads and their planning form one of the most important canons of town planning. Roads have threefold functions, they are highways for traffic from region to region, secondly they constitute a vital limb in the town planning and thirdly they have sanitary value, providing arteries for free ventilation. According to Aitereya Brahmana the royal thoroughfare was called Rajapatha or Sruti whereas the national high ways were known as Mahapatha.²⁷ It appears that the latter was connected with and fed by many thoroughfares leading to different parts of the country, while the former was comparatively free from dangers and its construction was better than Mahapatha. In Devi Purana²⁸ it was mentioned that the royal street or highway should be made as wide as 10 Dhanus, i.e. forty cubits, so that men, horses, elephants and vehicles can have free movement without interference and congestions. Sukracharya prohibits the construction of small lanes such as Veedhis and padyas (foot paths) in the metropolis or large cities. In Artha Sastra²⁹ we find mention, of chariot roads, royal roads, roads leading to Dronamukha and other minor forts, country parts and pasture grounds which should be four dandas or 24 ft.

in width. Roads leading to military stations, burial and cremation grounds and to villages shall be 8 dandas 48 ft. in width, roads to gardens, groves and forests shall be 4 dandas and roads leading to elephants stables and forests shall be two dandas.

The road through the southern gateway at Dhulikatta mud fort was paved with rubble and veneered with morrum and sand. This might be the method of constructing a road in other towns as well. The important commercial towns and villages were possibly connected by a network of roads. The region was actually traversed by ancient trade routes (Sarthavaha patha) one leading from north to south connecting Buddhist establishments and the other from east to west connecting Dhulikatta, Phanigiri, Gajulabanda, Tirumalagiri, Nelakondapalli, Nagarjunakonda and Dhanakataka. From Pauni in Vidharba region the Buddhist pilgrims might have travelled by forest roads or boat on the Wainganga river which falls into the Pranahita, a tributary of the Godavari. At the point of confluence of the Pranahita and the Godavari, the pilgrims possibly crossed the Godavari at the neighbourhood of Kalesvaram in Mahadevpur taluk in the Karimnagar district. From Mahadevpur they would reach Dhulikatta, the only Buddhist establishment in north-western Andhra Desa. The caravan route towards the west reached Tagara (Ter), Pratishthana (Paithan) on the banks of the Godavari and reached Sopara through Ellora and Nasikya (Nasik).

ARCHITECTURE:

It was prescribed in the ancient texts that the land and the landscape for building ideal towns and surroundings must consist of hills, mountains serving as natural frontiers not to be easily crossed from the security point of view. This is an invaluable asset but this rule cannot be adhered to everywhere, especially when the towns or villages were to be built on plains. Hence fortification was needed. Practically all the ancient towns and cities on the plains were fortified and a green belt of forests where tall trees and plants full of verdure and flowers were in abundance. This was necessary not only from the point of view of healthy climate but also conducive to the growth and maintenance of the population requiring fruits, fuel and fodder. The other requirement was water without which no life can subsist and hence the rivers, lakes, ponds and tanks were indispensable for the lay-out of a town.

TOWN PLANNING:

Any town plan in ancient or medieval India must bestow sufficient attention to the rajayesra, the residential quarters of the king and his kinsmen. The Samarangana Sutradhara³⁰ says that after the town has been planned all the roads both highway and the central ones together with the maharathyas, uparathyas and their auxiliary ones, the streets, lanes and by-lanes have also been planned out, the fortification in all its ramifications and component parts of the surrounding ditches,

ramparts and walls has to be completed. Then a piece of land was selected at the western side of the centre in the orientation of the north and the palace of the king should be built thereupon. The same text makes a classification of the palace into three categories viz. the jyesta the superior madhya, the intermediate, and the kanista the lower type.

Excavation in the middle of the mud rampart at Dhulikatta revealed a palace complex and the residential quarters which have been several phases of construction. In the earliest occupation level which was probably contemporary to the construction of the Buddhist stupa a huge enclosure wall of 26 x 30.50 mt. was raised over a single coarse of rubble foundation. The existing height of the wall is 2.60 mt. and 80 cm. broad. The structural plan of the buildings inside this enclosure is beyond surmise as they were all covered by buildings of successive phases, but at a depth of 1.60 mt. from the surface two parallel walls in the east-west direction were exposed. But for an entrance with a door step the remaining plan underlying the later structures could not be gleaned.

During the second phase the structures were raised over the ruins of the earlier phase over a foundation of rammed earth raised to a height of 40 cm. Part of a structure over this rammed earth foundation consisted of two rooms which seemed to have been covered with tiled roof as noticed by a debris of

fallen tiles in the vicinity. Towards the south of these rooms two store rooms, each measuring 1.05×0.65 mt. were uncovered. Slightly away towards the north is another rectangular room of 6.75×4.50 mt. On the exterior of the northern wall of the above room several vertical grooves were carved so as to hold wooden pillars to support a terraced roof. A 50 cm. broad entrance to the building was traced towards the east. The flooring of this phase was laid in lime concrete which was noticed in a fragmentary condition.

In the third phase, the structures were characterised by spacious halls with floors paved with brick, multistroyed buildings, granaries and wells provided with sewage signifying a period of prosperity.

The plan of the main building of this phase may resemble that of a quadrangular building known as Chatussala with four rectangular halls on four sides and a central court-yard opening to the sky. The entire edifice forms into a square in plan. The eastern hall in the north-south orientation measured 9.35×4 mt. In many chambers chases sunk into the face of the walls mark the places where wooden beams were originally let into the masonry. The southern hall which measured 10.80×4.00 mt. had a platform with a flight of steps. This class of Sala houses was most common in the early historical period. At the south-west corner inside the enclosure wall of the first phase, a brick well, square in plan (1.45×1.35 mt.)

was exposed. Adjacent to the well to the west is a platform with two post-holes evidently for erecting pillars to support a pulley. A covered drain 70 cm. broad runs adjacent to the wall.

While removing the filling from the above well a beautiful ivory button seal inscribed with Brahmi characters reading as 'Ajanisirya Game Kumariya' was recorded. A little north to the well are two granaries partitioned into compartments, one measuring 1.30 x 1.35 mt. with a depth of 4 mt. and the other 1.25 x 1.35 mt. with a depth of 3 mt. The granaries were constructed with brick in the shape of an inverted pyramid tapering towards the floor. The bricks were laid in receding layers so that one can easily get-down to the floor. The filling inside the granaries consisted of two gold beads, a few Satavahana potin coins, animal bones and pottery. Another granary in the vicinity also in the inverted pyramidal shape measured 1.35 x 1.45 mt. with a depth of 1.60 mt.

In the fourth phase the buildings were plastered with lime and burnished to smooth surface. Lime concrete was used for paving the floors. The brick used for buildings of this phase seems to have been removed from the structures of the earlier phase. A soakage pit with a partition in the middle (1.25 x 1.26 mt.) is noticed at the north-east corner. Construction of granaries continued of which one was a perfect square in plan and measured 2.16 x 2.15 mt. and the other 2.50 x 300 mt.

As in the previous phases, the buildings of the fifth phase were raised over the ruins of the earlier and were much disturbed

due to constant cultivation during the later periods. Most of the bricks from the buildings were removed and carried-away by the villagers, as such, the structural plans are not clear.

During the last phase the constructional activity with brick had completely ceased, and the entire complexion of the habitation changed. Huts sometimes square in plan and sometimes oval sprang over the ruins of palaces. The area became the habitat of artisans who eaked out their livelihood by sweat of brow. They included ^{Bangle and Bead makers} (artisans) Bead-makers produced precious and semi-precious beads. Terracotta art flourished but ceramic art deteriorated.

The above said palace complex situated slightly west of the middle in the midst of the fortress. From the beginning of the constructional activity, traceable to 3rd century B.C., the buildings were constructed with well burnt bricks with measurements 55 x 27 cm. or 50 x 25 cm. The length is always double of its breadth. The mortar was mud and the bricks were laid in headers and stretchers. The plans of the buildings were invariably rectilinear. Interestingly the structures do not have strong foundations, occasionally a single course of small rubble was used, sometimes they consisted of rammed morrum. However the buildings stood firm. In the earlier phases the floors were simply paved with small kankar and sand but it was replaced by lime concrete in the later phases. The walls were beautifully plastered with lime to a smooth surface. The entrances had flight of steps with ardhachandra shaped brick step at the floor level outside.

As described above some of the walls have grooves cut into the body at regular intervals, evidently for raising wooden pillars to support a terraced roof. Some buildings were covered by corrugated tiles perforated at one end. Many such tiles were noticed in the course of excavation. The breadth of the walls, usually 1 1/2 to 2 mt. may indicate the existence of multi-storeyed buildings. The palace complex in the middle of the mud fort was enclosed by a massive brick enclosure wall with an existing height of nearly 3 mt.

FOLK ARCHITECTURE:

After the planning of the roads, ditches, ramparts and the Rajavesma, the next important item is the planning of the residential houses of the people. They were principally five kinds of towns in ancient and the early medieval period—temple cities, capital cities and commercial towns, forts, and big villages, like Kheta, Nigamas corresponding to five principal needs of the civilized life, viz. worship, state craft, commerce, defence and agriculture.³⁰

According to castewise allocation in a town the Samarangana Sutradhara³¹ recommends the following procedure:

- 1) The Brahmanas were allocated to the north, the Kshatriyas the south-east, the Vaisyas the south and the Sudras the west.

As already noted, the settlement at Peddabskur appears to be a village with an extent of less than 5 hectares, and without a fortification. In the course of excavation many

Residential buildings constructed of either brick or mud over rubble foundations have been uncovered. These include three enclosures or prakaras, elliptical houses, cisterns and walls, soakage pits and covered drainage.

The enclosures constructed of well-burnt bricks are squarish in plan without any adjuncts. The breadth of the walls is nearly 2 mt.

Enclosure 11-(Pl 10.6)

This measured 16.80 x 15.80 mt. with a wall thickness of 0.65 mt. Ten courses of brick are now extant. A small entrance was seen in the middle of the southern wall. Over the top courses of the structure, post-holes at irregular intervals were noticed, evidently of a later period. Out side this enclosure at the south-western corner there is a brick well connected to a soakage pit lined with terracotta rings, each measuring 59 cm. in diameter and 37 cm. high with a thickness of 2 1/2 cm. Due to pressure of top soil, the rings were pressed down and consequently broken. A few red ware pot sherds and charcoal was scooped out of the pit. In the course of excavation in this structure, a punch marked silver coin besides a red polished globular pot impressed with a trident standing over a pedestal was noticed almost in the middle. This symbol was impressed at four places over the pot. In view of the stratum (layer-III) in which it was found constructed, this structure is datable to around 1st-2nd century B.C.

ENCLOSURE-II:-

About 10 meters east of the present main road another rectangular brick enclosure measuring 30 x 40 mt. was exposed, the longer axis being in the north-south direction. The trial probing work conducted by the Department before taking over the site under its protection laid bare a portion of the structure which was left uncared for resulting in the wholesale robbing of brick by the villagers. Some undamaged portions of the southern and western walls are 1.79 meters broad with three to four existing brick courses. In the remaining damaged portion only a 2 meter broad rubble basement was exposed, the size of the brick of the enclosure is 56 x 28 x 9 cm. A single 2.50 meters broad entrance was noticed at the north-eastern corner. The broad entrance was evidently intended for letting-in vehicular traffic.

ENCLOSURE-III:-

The 3rd Enclosure, squarish in plan measuring 30.80 x 30.80 mt. is situated on the south of Enclosure-I, about 100 m. away. The walls are 2 mt. broad and the brick measured 54 x 21 x 9 cm. Most of the bricks were not burnt well and consequently broken to bits. This had also resulted due to pilferage of the well preserved bricks. The structure was raised over a single course of rubble which was laid bare at many places. The walls on the north-east and south are intact. The western wall was completely robbed.

It is not clear whether these enclosures were inhabited by single families or group of families. Inside these enclosures 2 or 3 brick wells were invariably noticed. Only in the Enclosure II, which is smaller than the other two, the brick well was noticed at the south-western corner outside and connected to a soakage pit. Inside Enclosure III are two elliptical houses raised of mud walls. But these were not contemporary, one was earlier and the other later. The plausible reason would be that they contained quadrangular halls inside, raised all along the walls with a central opening in accordance with the fashion of the age. Outside these enclosures and contemporary with them are the houses of common folk, mostly having mud-walls covered either with thatch or tiles. From inside Enclosure-II came several thousands of Satavahana coins.

The plans of the houses are either rectilinear or elliptical. No round huts are seen. For the above two types, the basement consisted of rubble.

WATER SUPPLY:

The fundamental necessity for a town or village was a good natural supply of water and hence the river, lakes, ponds, and tanks were indispensable prerequisites. The most potent factor giving rise to the towns in ancient India was the presence of water in abundance. Consequently all the important towns and cities rose either on the bank of a river or a nullah.

The water reservoirs were given a special treatment in many works dealing with architecture. In the later works as Aparajitapracha³² and others three main varieties of water reservoirs were mentioned Kupa, Vapi and Tataka. There are ten varieties of kupa, the well. These varieties vary in their respective dimensions i.e. Srimukha is to be laid-out in four hastas and the Sankara-type to be laid out in thirteen hastas, but all these should be laid circular.

Panini³³ also mentions that the villages depended for their water supply on wells (Kupas) to which were attached Nipanas or water troughs from which cattle would drink. Wells were cleaned by specially trained labourers who acted as dredgers called Udagaha or Udakagaha.

Whatever water was used by the house-holders had been drawn from wells constructed of brick and occasionally terracotta ring wells. This is the case with regard to the settlements away from the main rivers. At Peddabankur as many as 22 wells were exposed in the course of excavation. Out of these only a single well was lined with terracotta rings with a square brick casing enclosing the rings at the top course. One well of brick is exactly square in plan and the remaining 20 are round and constructed with wedge-shaped brick, the antiquity of which can be traced to the Harappan period.³⁴ It was noticed that semicircular flat based (hog backed) bricks to a height of about 30 cm. were placed over the top courses of some of the

Pl 10 c

wells at the place wherefrom water was drawn in order to allow water slip inside or outside the well to avoid damage to the brick lining. In the later period when the wells were dried-up they were used as refuse pits for throwing down the garbage like broken pottery animal bones, ash and charcoal. In well No. 1 ^(Pl 10, d) constructed near the northern wall of enclosure-II inside, the filling from the well was removed down to a depth of 3 mt. It consisted of coarse-red conical bowls, globular vases, lotas, animal bones etc. All the bricks right from the top to the bottom used for steening the well are wedge-shaped which measured 38 x 20 cm. and 20 cm. long. The bricks were well burnt. Well No.10 was square in plan measuring 90 x 90 cm. The steening of brick was noticed upto the morrum level encountered at a depth of 2.45 mt. but the total depth of the well goes down to 3.85 mt. The finds inside the well were charcoal splinters, an iron rod, flakes of mica, fragmentary animal bones, iron slag, corrugated tiles, terracotta beads and pottery. Another well also steened with wedge-shaped brick had a diameter of 1.52 mt. inside. Excavation down to the last course exposed 39 courses, laid over a bed of pinkish hard morrum. The length of the brick is 30 cm. and thickness 7 cm. While exposing this well another well steened with brick was incidentally exposed just at a distance of 1.80 mt. towards the south. It has only 18 brick courses laid over a morrum bed. It appears the upper courses were removed for constructing the well mentioned above. The second well was much earlier in usage than the

former as evidenced by a layer of pot-sherds. To the west a deep pit was cut for leading-out the sewage. The bricks measured 33 cm. long and 8 cm. in thickness, wedge-shaped and well burnt. The diameter of this well is 1.50 mt.

Slightly towards north of these two wells, a brick drain, oriented east-west, came to light. It was constructed of bricks placed in 3 courses with a middle space of 12 cm. for the drain. The floor was also paved with brick. At regular intervals side vents were provided on both the sides to let out excess water presumably for avoiding bottle-necks. The drain was covered with brick to the full length. Due to pressure from the top deposits and also due to looseness of the ground soil the drain had sunk at several places in an undulating fashion. The total length of the drain is 11.15 mt. The starting point of the drain could not be located as it was much damaged. It must have been led-out from a collapsed tiled structure exposed nearby, which evidently was a bathroom. The brick of the drain measured 57 x 27 x 9 cm. It was led towards east to join a long ditch in north-south orientation.

As already mentioned there is only one terracotta ring well at Peddabankur. Each ring with a convex body measured 76 cm. in diameter and 38 cm. in height. There are altogether 21 rings upto the morrum bed. The top most ring was enclosed by a square coping of brick which measured 1.75 x 2.10 mt. outside and 0.90 mt. inside which is the diameter of the well.

None of the wells have washing platforms around. The sewage was allowed to percolate inside or led to a pit in the vicinity. Only one well, found outside the Enclosure II had a soak pit lined with terracotta rings. As far as would be observed mud mortar was the only cement used to bind the bricks forming the steening of the wells. Due to lack of paved floors around the wells it could not be decided as to what height the well was projected above the floor of the court in which it was situated. The excavated trench, before it was steened with brick was much wider and the gap between the trench wall and the bricks outside the well was rammed with morrum and hard earth to prevent waste water from re-entering the well. The top portions of some of the wells appear to be displaced and the brick surface much abraded by the ropes or the drawing vessels rubbing against them. In some ^{wells} ~~wall~~ where the brick surface is well preserved the water may have been lifted with some form of windlass as there are no marks caused on the surface by the friction of the ropes. If windlasses or pulleys have been used on any of the wells, these must together with their supports have been made of wood. In a well, found at the north-east corner, inside Enclosure II the gaps which carried such wooden poles on either side were noticed.

CISTERNS:

Brick cisterns or troughs invariably form the essential feature of civic life during the early historical period. Many such cisterns excavated at Peddabankur were constructed of well

burnt bricks. Some of these had floors rammed with morrum and then paved with brick to prevent percolation. But some have only rammed floors. The other feature is that none of these cisterns are near the wells, but found at considerable distance.

One cistern is a perfect square in plan measuring 85 x 85 cm. and has presently only two brick courses, the bricks measuring 55 x 22 cm. In the middle of the cistern was noticed a hog backed coping brick and a broken quern by the side of the brick. Evidently the hog backed and flat based bricks was used not only for the top courses of the wells but also over the cisterns.

A second cistern was found almost in the middle of the Enclosure III. It has 6 courses of bricks and measured 80 x 75 cm. inside. The floor was first rammed with morrum and then paved with bricks. Cisterns with brick paved floors are rare.

Adjoining the cistern is a washing floor bordered with brick but the floor inside was not paved. Towards the south-west of Enclosure II and 50 mt. away 3 brick cisterns at varying distances were noticed. They measured No.1, outer 1.11 x 1.11 inner 0.66 x 0.68 mt.; No.2, outer 1.10 x 1.10 mt., inner 0.60 x 0.60 mt., No.3, outer 1.10 x 1.10 mt. inner .60 x .60 mt. A well (No.6) which was steened with wedge shaped brick was found at some distance to the cisterns.

Another rectangular brick cistern with four existing courses measuring 2.37 x 1.47 mt. came to light also at Peddabankur. The lowest course slightly projected outside and the corners have

been rounded. Adjoining and to the north of it there is a flight of two steps possibly for taking-out water. The floor inside the cistern was tightly packed with morrum. Slightly away, a debris of tiles would indicate the collapsed roof of the house covered with tiles. To the north and adjoining the cistern are two more cisterns of equal dimensions (80 x 80 cm.). One is slightly at a higher level and adjoined with a brick platform studded with iron slag. In all probability the 3 troughs and a hearth (22 cm. broad) and the working platform studded with slag are the remnants of a blacksmith's workshop.

RELIGIOUS ARCHITECTURE:

Brahmanical

None of the sites excavated or explored in the Karimnagar region gave us any evidence of temples of the Brahmanical origin. A single brick cell about 100 mt. away to the west of Enclosure-III appeared like a temple without giving us any knowledge as to what deity it was dedicated to. The brick temple measured 5.30 x 4.90 mt. Chases were cut into the body of the inner surfaces of the walls, suggesting that the roof was supported by wooden poles. A small gap of one meter found at the south-west corner might have served as an entrance, or else it could be that the wall at the spot was removed in the later period.

Another structure to the east of Enclosure III and 50 mt. away is rectangular in plan and measured 2.00 x 2.50 mt.

To the west of it there is a flight of steps. While exposing the steps a fully polished stone axe of dolerite came to light. It appears that the people had kept the relics of the past as momentos; otherwise no significance can be attached to the stone axe while dealing with an age characterised by highly developed metal technology.

BUDDHIST: -

The other variety of religious structures which could easily be distinguished from ^{the} domestic architecture are the Buddhist stupas. While excavating the early historical sites at Peddabankur and Dhulikatta we were puzzled as to the religious proclivities of the people. Notwithstanding the occurrence of terracotta figurines of Mother Goddesses and Yakshas etc. there was no other clue. The discovery of a Buddhist stupa a km. north of the Dhulikatta mud fort solved our problem to some extent. Reviewing all the available evidences it may be presumed that the Buddhist religion was more organised than the Brahmanical, atleast among the common folk.

Excavation over the mound brought out a Buddhist stupa constructed during the last quarter of the 3rd century B.C. and was embellished with carved ayaka slabs during the 1st quarter of the 2nd century B.C.

CONSTRUCTION OF THE STUPA: -

The stupa consisted of a brick drum with a height of 2 mt. over a single layer of rubble basement. The anda or the dome

rises over the garbha to a height of 5 mt. and crowned by a harmika and chatra. The chatra, carved in lime stone, was recovered in fragments in the course of excavation. The 1st phase of the stupa saw the construction of a solid drum enclosed by a square platform to serve both as buttress to the garbha and as well as a pradakshina-patha. For maintaining a hemispherical shape the 'anda' was raised in several stages, in alternating courses of brick and morrum. The lowest brick course of the 'anda' above the drum slightly projects. Then a layer of morrum to a thickness of 36 cm. was laid over the first course. The second course of bricks above the morrum layer was arranged in headers and stretchers. For getting a circular shape, no wedge-shaped brick was used. Apparently these were not in vogue at the time of the construction. However, a perfect circle was obtained by filling up the gaps between the rectangular bricks by earth and brickbats. Again, over the second brick layer a 57 cm. thick deposit of a mixture of silt, morrum and brick-bats was raised. At the top of the dome there is a square brick cell which probably served as harmika.

The programme of expansion during the second phase consisted of enlargement of the drum circle by constructing a second tyre around the earlier one and then the ayaka platforms were raised at the four cardinal directions. The ayaka slabs were affixed to the exterior face of the enlarged drum with lime plaster.

The garbha of the stupa was bedecked with 47 carved ayaka slabs, which are mostly intact. On one of the slabs the Muchilinda Naga, a five hooded cobra protecting Lord Buddha, symbolically represented by his feet, was exquisitely delineated. At the top of the five hooded Naga over the frame was inscribed a label, an early Brahmi script datable to circa 2nd century B.C. It reads as GAHAPATHINO PATHALASA MATHUYA SAMAYA DANAM. (PL/6.c) The slab was affixed to garbha with a thick plaster of lime. Interestingly the Naga slab at the northern ayaka platform is prefaced by a huge pipal tree.

In between the eastern and the northern ayaka platforms there is another slab bearing the five hooded Naga slab inscribed in early Brahmi characters reading "PITHA NANDI PUTHASA DUHUTHUYA SAYONIJA DANAM" the Naga Muchilinda on both the slabs was crowned by a chakra under the shade of a pipal tree shown in incised design. The Buddhanadas were carved over the coiled body of the Naga. In the other panel is found a dharmachakra with the two votary couple standing on either side in anjali. Most of the slabs have the representation of stupa depicted in bas relief. (PL/6.a) As there was no anthropomorphic representation of the Buddha the Stupa had remained as a bastion of Hinayana sect without any influence of the Madhyanika school. Buddha was represented symbolically by the chatra, padukas, dharmachakra and stupa etc.

MONASTIC CELLS:

On the north-west of the stupa and just two meters away are a series of square monastic cells each measuring 3.30 x 3.50 mt. The walls of the monastery consist of two alignments of single brick courses laid separately with an intervening gap of 42 cm. filled in with a pack of waste brickbats and morrum, a devise evidently adopted to restrict the usage of bricks. The 90 cm. broad doors of the cells open into a verandah on the north which is one and half meters broad and runs along the length of the rooms. The floors inside the verandah and rooms were paved with brick and the roof was covered with tiles.

At the rear of the rooms are two more walls of single brick course laid separately with a gap of 40 cm. The plan of the building constituting these walls is beyond comprehension due to limited scope of the excavation.

PHANIGIRI:

The village Phanigir is situated on the Jangoan-Suryapet road, about 60 km. away from Jangoan. An extensive Buddhist settlement, consisting of many stupas and viharas was situated on the top of a flat hill, a kilometer north of the village. There is a huge tank at the foot of the Phanigiri hill, the antiquity of which may be traced back to that of the Buddhist settlement. Phanigiri must have been situated in the ancient caravan and Buddhist pilgrim route from the Vidarbha-Kosala region towards Dhanakataka. In the vicinity, other Buddhist settlements are noticed at Gajulabanda, about 5 km. towards

east and Thirmalgiri about 30 km. towards south-east.

As stated by Khaja Mohd. Ahmed³⁵ there are ruins of 30 stupas most of them circular in plan, and raised over rectangular stone basements. Most of the stupas are noticed over the western proclivity of the main vihara, and constructed in different tiers.

In the middle of the main vihara are found many brick constructions, square in plan, and appear like cells possibly occupied by the Buddhist monks. As the establishment was raised over the hill the constructions were supported by buttresses in the shape of boxes in order to stop erosion due to rain and eroding.

Many perforated tiles as noticed in other Andhra sites were found here among the ruins. It is likely that the structures had terraced roofs covered with the tiles. The bricks in the ruins, measured 55 x 27 x 8 cm. Many carved friezes of lime stone have been found. The artistic wealth though quantitatively small yet represents a highest artistic tradition. Besides the stone sculpture, few coins of Satavahanas (and Ikshvakus?) and Eastern Kshatrapas were also recorded.

GAJULABANDA:

Gajulabanda³⁶ is about 5 km. east of Phanigiri. The Buddhist settlement is noticed near a huge tank on the outskirts of a small village by name Eitoor, in the Suryapet taluk of the Nalgonda district. A trial excavation by the Department of

Archaeology revealed the existence of stupa, vihara complex and chaitya, of which the former indicated two phases of constructional activity with marked variation in plan and conception. The earlier plan of the stupa, comparatively small in size, was engulfed by the later accretions resulting in an elevated 16 spoked stupa simulating the examples at Amaravati and Nagarjuna-konda. The speciality of the stupa lies in its simplicity and convenient location. It is noteworthy that the stupa is devoid of ayaka platforms in contrast to those found in other parts of Andhra Desa.

A full wing consisting of 8 cells of a three winged monastary came to light. A rectangular Verandah running in the east-west direction was added to the vihara complex. The chaityagriha is at present devoid of stupa-chaitya or the anthropomorphic representation of the Buddha. The rich collection of antiquities constituted stucco figurines such as moulded lions, petalled lotuses, volutes, creepers, cord patterns and animal figures such as makaras and yalis etc. Two sculptured lions carved on lime stone were also recovered. The pottery included conical bowls, sprinklers, decorated pot sherds carrying lotus designs etc., made of well levigated clay and turned on fast wheel. A fine variety of black polished ware was also associated. The abundance of sculptures made in stucco indicate that the builders had taken pains to embellish the structures and more so it speaks volumes for their ability to plan such a comprehensive monastic complex in all its essentials within a restricted place.

THIRMALGIRI:

The village is about 70 km. from Jangaon towards Suryapet. A huge Buddhist stupa was noticed to the west of the village, which is now totally ruined. The entire area which was once hallowed by the presence of a Buddhist stupa is now occupied by recent hutments. The entire court yard of one house, a bath-room of another and a cattle-pen of the third could find enough space over the dilapidated drum of the extensive stupa. A few beautifully carved pieces of lime stone such as dharma-chakra, a fragment of a narrative sculpture of a Jataka story are now embeded in the mud walls of a carpenter's house.

MATERIAL LIFEPROFESSIONS:Agriculture:

Panini mentions agriculture as 'krishi' derived from the root 'krish', to plough. Katyayana and Patanjali have an interesting discussion that 'krishi' denotes not only ploughing but includes collectively all other operations of agriculture such as the supply of seeds, implements, animals and human labour³⁷. The husbandman was known as krishivala.

Agriculture was the main occupation even of the Vedic Aryans and they devised ways and means of improve the methods of cultivation. Plough and bullocks or sometime buffalos were indispensable for the purpose of cultivation. In Rigveda we find mention of sasya (food grain) krishi (Cultivation)

yava (barley) etc. A person called Prthi Vainya is credited with the origin of ploughing in Atharvaveda (Av.8-10-24). The Satapatabrahmana mentions the different process of agriculture as "ploughing, sowing, reaping, threshing, and tilling the plants" etc. The brahma texts record that paddy which was sown in the rains ripened in autumn. We also find references to two harvests a year.

Cowdung was used as manure for the lands. The Satapata-brahmana says "cowdung surcharges the earth with sap and hence cow-dung is collected" (SB.2-1-1-7). Even from the Vedic times the cows and bullocks were regarded as prized possessions for manure and ploughing. The cow was held in high esteem and addressed as the Goddess Aditi. The Satapatabrahmana says Iyan vai Vasa, Pranin (the cow is the veritable earth). Cattle means prosperity or nourishment, goods mean cattle and riches mean cattle and cattle means food, says the Satapatabrahmana.

(PASAVO HI ANNAM)³⁸

Kautilya³⁹ ordains that the Superintendent of Agriculture should possess the knowledge of the science of agriculture dealing with the plantation of bushes and trees, or assisted by those who are trained in agricultural sciences (Krishi tantra). The superintendent shall in time collect the seeds of all kinds of grains, flowers, fruits, vegetables, bulbous roots etc.

In Bṛhatśāṅkhita⁴⁰ the agricultural operations were dealt with quite elaborately. Fields were marked off from one another by

means of artificial boundary lines. There were two main crops, purvayasya and aparayasya.

The early historical settlers in the Karimnagar region as in other regions had attained a very high degree of civilisation characterised by fortified towns, palatial buildings, subterranean-sewage, well-laid out roads, a good water supply and metallurgy. Their economic life was a combination of agriculture, animal husbandry and probably hunting. Many of the towns and villages were raised in the middle of arable plains of black-soil. Some of the lands on the outskirts of Kotilingala mud fort had a fencing of stone slabs. Some of the slabs were inscribed with brahmi characters of 2nd-1st century B.C. One stone pillar now lying in a paddy field about a kilometer away from the fortress bears a label inscription which reads as NAGA GOPI NIKAYA, nikaya may mean an assemblage, or a group probably of lands.

The selection of cultivable plains by the early historical people would indicate their devotion to agriculture. It is likely that while the towns were inhabited by the kings feudal chiefs and their entourage besides those in commercial professions, the villages were mostly occupied by husbandmen.

In the course of the excavation at Peddabankur a terracotta sealing incised around the perimeter of a black and red ware rounded potsherd with brahmi characters as "VIJAYAPURA HARA KASA RATTASA". In accordance with the level it was found the sealing

was dated to 1st century B.C. In the middle of the circular inscription a figure of plough was incised with a yoke and two pegs on each side, evidently for fastening the leather thongs around the neck of draught animals. The inscription may mean that it pertains to one Ratta of the Ahara of Vijayapuri. They may suggest that the profession of the individual was cultivation as indicated by the plough. In one of the inscriptions of Virapurushadatta, the Ikshvaku king of Vijayapuri it was stated that his father Chamthamula donated thousands of ploughs in order to promote agriculture. Hala may indicate both a plough or an extent of land that could be cultivated with a single plough.⁴¹ The area actually brought under the plough was known as halya and sitya.⁴² Halya was the unit of land cultivated with a single plough as may be inferred from the examples, dvihalya and trihalya, stated in Kausiki (IV.9.47). In Rig Veda (IV.57.6) Sita or furrow was personified and addressed as a deity. In Atharva(III.17.5.107) Veda Sita was worshipped as deity to bless, bestow prosperity and bring fruits (of land) abundantly.

There is another terracotta seal, also from Peddabankur, incised with a yoked plough in the middle and flanked by the so called Ujjain symbol and a spoked wheel on either side. The Ujjain symbol as suggested in the previous chapter may indicate the four cardinal directions or the deities presiding these quarters. The spoked wheel is a symbol of the Sun god. The presence of the yoked plough in between the two auspicious symbols may suggest that the yoke was also worshipped or regarded as a

sacred object. In Rig-Veda the two agricultural deities Suna and Sira⁴³ were venerated for sprinkling the earth with water. The Sunā Sira mentioned in Rig Veda are the dual gods of whom Suna according to Saunaka is the deity of the Sky i.e. Indra and Sira is Vayu. In Atharva Veda (III.17.8.107) a sacrifice was offered to Suna and Sira to make the plants give abundant produce. In the Yaska's Nirukta, Suna was identified as Vayu and Sira with Aditya and in ordinary parlance Sunasira is a name of Indra.

The clearing operations of the jungles for making the land suitable for cultivation were carried out with the help of flat celts of iron hafted to wooden handles. The weeds were removed with the help of weeders. A large number of sickles found in the excavations were in all probability used for harvesting. The so called hoes found at Peddabankur and other places were not hoes as suggested by some scholars but are really plough-shares. The implement from Peddabankur has a thick curved cutting edge and the flaps at the butt were folded inwards to form into a socket. The uncertainty regarding the nature of the object would disappear if the curved cutting edge and the heavy weight of the implement are taken into consideration.

There is one more interesting object, also from Peddabankur, which is a spade or scraper with a 15 cm. long and 9 cm. broad blade and a flat (14 cm. long) tang. It must have been used as a spade or scraper for levelling the fields.

The extensive use of oxen in agricultural operations for heavy traction or prolonged draught work is attested by some peculiar characteristics revealed in the osteological studies.⁴⁴ A bone of a cattle found at Peddabankur is ankylosed fairly extensively, a condition usually noticed in animals subjected to heavy operational drafting. The hind legs are prone to heavy pressure in the heavily worked animals either for plough or draft purpose.

In addition to the agricultural operations many varieties of animals were domesticated for food requirements. They consisted of cattle, buffalo, sheep, goat, dog, swan and rodent. There is also a skeleton of a horse found dumped in an early historic brick well. The swine population either wild or domesticated appears to be unusually low at Peddabankur.

HUNTING:

Besides domestication of animals, some of the people practised hunting of wild animals as indicated by a large number of iron arrow-heads, lances and spear-heads. Kautilya⁴⁵ cites Pisuna as saying that among the vices hunting and gambling, hunting is a worse vice. Game shooting was done with arrows provided with barbs (patra) and such arrows according to Panini caused extreme pain (Panini V.4.61) In connection with shooting barbed shafts he refers to two kinds of arrows viz. sapatra and nishpatra barbed and unbarbed. Hunting is often referred to as lubdha Yaga and the hunter was called margika, one who shoots mrugas and a

bird trapper pakshika or sakunika. Among the hunted animals included deer⁴⁶, pig, turtle and a large variety of birds.

CARPENTRY:

The carpenter enjoyed an important position in the society. Panini⁴⁷ mentions three important village artisans known as gramasilpis viz. the village carpenter, potter and barber,. Pathanjali⁴⁸ dilates the list as that in each village there were five artisans viz. the potter, black-smith, carpenter, barber and washerman. The carpenter was variously known as taksan and vardhaki. Vatsyayana⁴⁹ includes wood carving (taksana) in the list of 64 arts.

The chief concern of the carpenter was the selection of trees for suitable wood to be employed in fabricating it.

Varahamihira⁵⁰ throws ample light on the selection of wood. The timber of trees near cremation grounds, the river confluences, in the vicinity of a temple, by the road side, of those withered at the top, entwined by creepers, thorny, those possessing nests and bee-hives and those that collapsed due to thunder-storm or by elephants or those fallen down in a southerly or westernly direction are prohibited.

The criterion in the selection of appropriate trees is that only those trees should be selected which have sufficient strength for bearing the load of structures and super structures of buildings. Most of the architecture in the ancient period related to pillars, beams, lintels, door-frames and the entire structure of the roof all made of timber.

The following types of trees were commonly selected

- 1) Khadira
- 2) Bijaka
- 3) Sala, and
- 4) Madhuka,
- 5) Saka
- 6) Simsipa
- 7) Sanja
- 8) Ajuna
- 9) Anjana
- 10) Asoka
- 11) Kedara
- 12) Rohini
- 13) Vikankata
- 14) Devadaru
- 15) Sriparni.

Among the carpenter's implements the axe, adze, chisel saw blade, are commonly noticed. Many kinds of iron nails such as flat-headed, bent-headed, round topped may be included in his tool kit. Some of the nails are as long as 20 to 25 cm. suggesting that much thick wood was utilised. There are also a good number of rivets from Peddabankur and Dhulukatta. These rivets consist of nails of square cross-section riveted to squarish plates on either side. Some of the rivet's are 12 to 15 cm. long. There are also many staples.

METALLURGY:

Metal industry had reached a high water mark of development during the early historical period in the Karimnagar region. The commonly worked metals are iron (loha) copper (tamra) gold (surverna), lead (sisaka) bell metal (kamsya) glass (kacha).

MINING:

The knowledge of iron smelting and its forging was known in the peninsular India from the beginning of the first millennium B.C. if not earlier. There are many references in literature to numerous iron ore producing centres throughout the Deccan which yielded high grade iron. The iron ore was found and smelted at Warangal, Konasamudram, Dindurti, Komrapalli,

Eranapalli, Mulkanir, Nirmal, Gudkole, Mylavaram, Jagtyal, Yelchal, Rengapet, Konapuram, Kallur, Anantagiri, Lingampalli, Nizamabad⁵² etc. The iron ores were collected from the above places and turned into fine steel known as 'woots' at the famous steel producing centres like Konasamudram, Yelgandal, Ibrahimpatnam, Kanapur, Chintalpet and Gudkole. The steel produced at Konasamudram, was of a very high quality which attracted traders not only from the different parts of India but also from far off countries like Persia.⁵³

SMELTING OF IRON:

The actual method of smelting iron is not clear from the available evidences though it may be possible to draw certain broad inferences. Rami Reddy⁵⁴ suggested that many of the ash mounds noticed in south Andhra Pradesh and adjoining Karnataka districts were possibly resulted due to iron smelting. He suggested that the cow-dung cakes were arranged like a dome and iron ore lumps were placed in the middle of the heaps. The heap was then covered with green, semi-green and dried cactus twigs which were largely available on the hill slopes. The roof of the dome was finally covered with earth and fire was lit. When all the corners of the heap took fire quartz and feldspar pieces were thrown into the fire. The heap was allowed to burn overnight. The heap would thus yield partially vitrified ash lumps. Further the iron ore lumps would melt to form into iron.

But this modus operandi appears to be local and does not seem to have penetrated to other regions. In Karimnagar region

no ash mound has been noticed so far nonetheless, iron technology was as old as any other place. The method suggested by Banerjee⁵⁵ may hold good in this region which consisted in laying several alternate courses of charcoal and iron ore and daubing the entire pile thickly with clay to prevent heat from escaping. The kiln, circular in plan, must have been provided with passages for intake of air and escape of gases and outlets for molten iron. The collected molten iron was first cooled off by inserting it into water and then hammered out for the removal of charcoal. In course of hammering the charcoal was absorbed into the iron giving it the properties of steel.

The other method of manufacturing steel⁵⁶ was to cut out blocks of iron obtained in a malleable state, into cubes each about one pound in weight. These small cubes were put in crucibles of various sizes according to the purpose for which the steel is to be employed. The fire is then kept up for more than 24 hours, with dried branches of teak, bamboo and green leaves (Cactus) of various shrubs. It is then allowed to subside and the crucible is placed on the ground to cool-off. When it is opened a cake of great hardness is found weighing about a pound and a half which is half a pound more than the original cube placed in the crucible. The cakes thus prepared were used for the manufacture of Damascus sword-blades, daggers, knives, spears, arrow-heads, and such others.

Interestingly a crucible of iron 15 cm. in diameter, was found at Dhulikatta excavations. Lot of charred wood, leafy

material and mud besides a big well-burnt terracotta cake adheres to the concave crucible. The encrustation outside and inside may suggest that it was burnt under a huge pile of wood. In the vicinity of the crucible a squarish cake with a middle core of solid iron overlaid with quartz (crystals) pellets and burnt clay may go to prove that iron and steel metallurgy was practiced as a home industry.

As regards the method of forging adopted in the early historical period the excavation at Peddabankur yielded a terracotta forge slightly ovoid in shape measuring 20 cm. in diameter at the broader axis and 12 cm. at the shorter. The unoven wall is to a height of 19 cm. and is 2 to 2 1/2 cm. in thickness. It has an oblique hole for introduction of nozzle of bellows. The inner surface of the wall around the nozzle hole has a lot of encrustation of slag. Associated with the forge there is a rectangular brick cistern (2.37 x 1.42 mt) of four courses, the lowest course projecting outside and the corners on the exterior are rounded. Two small brick steps adjoined the cistern to the north. The floor of the cistern was packed with morrum with a veneer of tiles. In juxtaposition to the main cistern are two more smaller troughs of bricks (0.80 x 0.80 mt.) The working floor near the forge was thickly embedded with fragments of iron slag. The other antiquities included an iron ring, revet, iron nails, a sickle, an iron knife constituting the finished products of the blacksmith.

IRON OBJECTS:

There is a vast assemblage of iron objects found in the early historical sites particularly at Peddabankur and Dhulikatta which are categorised mainly into weapons of war or defence, tools and implements for agriculture purpose, carpentry and household.

WEAPONS OF WAR AND CHASE FROM LITERATURE:

Various types of weapons and missiles were used even from the Vedic period. The Aitareya Brahmana⁵⁷ speaks of "chariots yoked with horses, armours, bows and arrows". These were the weapons of a Kshatriya. In Satapatha Brahmana we find reference to thousand-spiked hundred-edged thunderbolt. According to the same authority an arrow measured five span in length. The 'Syadhitih' as mentioned in the same text may refer to a carpenter's chisel, the chopping knife and razor. For salubstering the horses in the aswamedha sacrifice, the knives were made of gold, iron and copper respectively to serve different purposes. A crooked or curved knife was known as parsva. The sword (asi), Scimitar (sasa) staves (danda), sharp shovel (abhri), bows, armour were mentioned in the Brahmanas. The axe or parasu was used to cut fire wood and used in battles as well. In the Sukla Yajurveda⁵⁸ the God Rudra carries heti(weapon of fire) pinaka (bow) dhanau (small bow) isu (arrow) vajra (thunderbolt) khadza (scimitar) asi (sword), nisanga (sabre), isudhi(quiver) sara(thin arrow) etc.,

In A_{tha} Sastra⁵⁹ it is ordained that canals should be constructed inside forts for holding weapons (hiding). In those canals there should be collected stone (to be used as missiles), spades, axes, staffs, cudgel, hammers, clubs, discus, machines and such weapons as can destroy hundred persons at once, together with spears, tridents, bamboo sticks with pointed edges made of iron and explosives etc. In Buddhist sculptures⁶⁰ from Amaravati, Sanchi, Mathura etc. we notice the mace, club, hammer, spear, lances, trident, bows, arrows, swords, shields, battle-axe, thunder-bolt, daggers and chakra.

WEAPONS FROM THE EXCAVATIONS:

(a) Spear Heads (Pl II. a & d)

The weapons of war or chase from Peddabankur included spear heads, lance-heads and arrow-heads. All the three types of weapons are both tanged and socketed. The longest spear head has a 20 cm. long cutting-edge with a pointed tip. This has a socket of 1 1/2 cm. in diameter for introducing a long shaft. The second spear is tanged, with one concave side and the other, straight. The tip is broken. The tange with a square cross section is 11 cm. long. The third spear, also tanged, has concavity on both edges and widens upwards to form into a pointed tip. The fourth also tanged, of square cross-section, is leaf shaped.

(b) Lance Heads (Pl. II. c bottom row)

Three solid lance heads have the pointed ends squarish in cross-section. Of these, one is socketed with its diameter widening downwards. The fourth is also socketed and has a short leaf-like cutting blade. The fifth, with a tang of square cross-section is slightly damaged at one side. The leaf shaped spear heads are also found at Maski⁶¹, Sisupalgarh⁶², Taxila⁶³ Kausambi⁶⁴ and Nasik.⁶⁵

There are two more interesting lance heads, one is lenticular in shape with a 8 1/2 cm. long blade with a tang; the other almost looks like an arrow-head but slightly bigger. The broad blade at the base tapers to a point at the apex.

(c) Spikes:-

There is a unique spike with 23 cms. long and pointed nail broadening at the base and again tapering to a tang of rectangular section. It must have been hafted to a long wooden shaft to be used by horsemen.

(d) Arrow heads Pl II. c top row

There is a wide variety of arrow-heads both tanged and socketed. Only the socketed ones are barbed. The cutting blade is usually an isosceles triangle with 4 cm. long sides but the base is concave, to be hafted into the clefted socket. Among the socketed ones there are also arrow-heads with convex base; in that case they do not have barbs.

Barbed arrow heads are previously recorded at Hastinapur⁶⁵ Kausambi⁶⁶ and Navdatoli.⁶⁷ The second variety is the tanged ones, which are sometimes as long as 9 cm. An arrow-head with such a long tang has a narrow cutting blade about 1 cm. broad and 3 cm. long. These tangs would be inserted into the clefted wooden shafts. There is another unique variety of tanged arrow-head with a leaf-shaped lengthy blade, 8 cm. long, 1.8 cm. broad blade. The clefted tang was hafted to the cutting blade to form the mid-rib. Tanged arrow-heads are commonly noticed in many early historical sites as at Sisupalgarh⁶⁸ Prakash⁶⁹ Maski⁷⁰, Nasik⁷¹, Taxila⁷² and Navdatoli⁷³. Another arrow-head has a lenticular blade with the apex now damaged.

There is one more interesting arrow-head which is short and lenticular about 7 cm. long and 1.5 cm. broad. Both the ends of the blade are pointed. It was probably hafted at both the ends. The double tanged arrow-heads from Taxila, unlike those found at Peddabankur, have tang over the tang under the base of the cutting blade. But the Peddabankur type have points at both the ends so that they could be shot or hafted either way.

AGRICULTURAL IMPLEMENTS:

(a) Sickles (Pl 14 a)

Only three types of agricultural implements could be distinguished. They are the sickle, the so called hoe and the spade. Among the sickles two varieties are noticed. One has

the cutting blade almost at right angles to the tang. The cutting blade of the other, takes a swooping curve from the tang. There is also one more variety which is almost semi-circular. The cutting blades range in breadth between 4.5 cm. to 2.03 cm. and in length 23 cm. to 10.5 cm. The cutting blades of those which are at right angles to the tangs are usually in the shape of an arc at the outer blunted edge. The tangs are sometimes 22 cm. long, the entire length apparently could not be inserted into the handle. Only the lower part which is thinner and 8 to 10 cm. long would be hafted. Sickle is the commonest agricultural implement noticed at several places like Hastinapur⁷⁴, Taxila⁷⁵, Kausambi⁷⁶, Sisupalgarh⁷⁷, Piklihal⁷⁸, Maski⁷⁹, Prakash⁸⁰ and Pauni⁸¹. It was also found in large numbers in megalithic burials as at Brahmagiri⁸², Sanur⁸³ etc. At both the places the sickles have almost semi-circular cutting ends. The specimen found at Piklihal⁸⁴ from layer-2 was compared to those found in many graves of South India.

(b) Plough Shares: Pt 14 G

The second important implement is the so called hoe found in many excavations such as Prakash,⁸⁵ Sisupalgarh⁸⁶ and Hastinapur⁸⁷ and many other megalithic sites. It consists of a curved cutting edge about 7 cm. long. The flaps at the base were folded forward to form into a socket. In the common usage the hoe consists of a thin iron blade fixed transversely on long handle for loosening or scraping up weeds. The splayed out

cutting blade is wide enough to scrape up undulations or remove weeds etc. But the implement from Peddabankur has more than half a centimeter thick cutting blade and is only two andhalf to three centimeter broad. The length varied, including the socket, from fourteen to sixteen centimeters. Evidently the implement could only be plough share. There are two solid blade fragments of iron, one is 6 1/2 cm. long and the other is 6 cm. The thickness at the butt end is 1 1/2 cm. to 1 cm. These are the only specimens among the entire collection which could be designated in the modern sense as plough-shares, but the small pieces could be used as wedges rather than as plough-shares. With such a large collection of sickles the absence of plough-shares can be explained by the presence of the socalled hoes which are really plough-shares.

c) Spades: (Pl 14 c extreme left)

The third variety of implement is a spade. It is a 15 cm. long, presently damaged and 9 cm. broad cutting blade and 2 cm. broad and 14 cm. long tang, which itself might have served as handle.

Blacksmith:

Blacksmith or Kārmara (Kammari in Telugu) occupied an important place in the village economy. Panini⁸⁸ enumerates the tools of a blacksmith as the bellows (*bhastra*), the sledge-hammer (*gyoghana*), axe (*drughana*), tongs (*kutilaka*). Interestingly the Peddabankur excavation has yielded a terracotta forge,

adzes and tongs. Ayoshana may also mean anvil but unfortunately not even one specimen came to light. There are also no sledge-hammers. Tongs (kuttlaka) is represented by a single specimen consisting of two limbs connected by a hinge for grasping and lifting objects from the forge. Two such tongs were found at Taxila⁸⁹ excavation.

Carpentry:

The carpenter (the taksan) was the other most wanted artisan during the period under review. The walls of the buildings were raised with well burnt bricks but the entire super-structure was made-up of wood, whether it had a terraced or gabled roof. Timber was plentiful, cutdown from the forests which occupied vary extensive tracts compared to the present day.

TOOLS: (Pt II-C)

The carpenter's tools included axes, adzes, chisels, drills saw-blades, etc. The axes from the early levels are simple flat celts. The axes with the shaft hole with concave sides and splayed-out cutting edge come only from the 2nd-1st century B.C. and upwards.

(a) Flat Celts:

There are three celts from Peddabankur, the first has slightly concave sides and large cutting edge, more then 17 to 18 cm. long and 10 cm. broad. The second object is a long celt about 18 cm. long. The cutting blade which is 5 cm. at the butt end gradually splays out to 8 cm. breadth. The third implement

is smaller than the above two, with a 6 cm. broad butt end and 9 cm. cutting end. The sides are roughly concave. The flat celts are usually found in many other excavations such as Prakash⁹⁰ Nagda⁹¹, Ujjain⁹² etc.

(b) Axe with Shaft hole:-

The second type which is found in the later level is an axe with a shaft hole. It has concave sides and splayed-out cutting edge. No shaft holed axe was noticed at Peddabankur. The Dhulikatta axe is 10.5 cm. long and as the cutting end is damaged the width could not be measured. Similar specimens came from Prakash⁹³, Kausambi⁹⁴, Maski⁹⁵ and Taxila⁹⁶.

(c) Adze:- Pl 14 c 293

The second and the most common tool of the carpenter is the adze. All those found at Peddabankur have shaft holes. The total length of an intact adze is 18 cm. including the hole, the shaft hole having a diameter of 4 cm. The adze is three cm. thick near the shaft hole and gradually attenuates towards the cutting edge. Socketed adzes were also reported from Hastinapur⁹⁷ Taxila⁹⁸ and Kausambi⁹⁹.

(d) Chisels:-

There are four chisels recovered from Peddabankur, one has 24 cm. long and 9 cm. broad blade of square cross-section. The butt end is thickened. The second one is 16 cm. long and 1.2 cm. broad. Pieces of the hafted wooden handle still adhere

to the butt end. The third chisel is 11 1/2 cm. long and 1 cm. broad, with prominent lugs at the butt end presumably to-stop downward thrust of the handle when hit by hand. The fourth one is shorter than the above three but broader. It is 9 cm. long and 2 cm. broad. The tang is broken. Chisels are common in early historical levels, analogies of which come from Hastinapur¹⁰⁰ Taxila¹⁰¹, Sisupalgarh¹⁰², Prakash¹⁰³, Nasik¹⁰⁴, Kausambi¹⁰⁵ and Maski¹⁰⁶.

(e) Nails: Pl 14 d bottom row

Among the other objects of carpentry mention may be made of nails, rivets and staples or loops.

The nails are mainly of two types - round headed and flat-headed. A nail about 23 cm. long from Peddabankur suggest the thickness of timber used for buildings etc. It has a round head pointed at the top and of round cross-section. Other nails are mostly square in cross-section. Some nails have flat heads. After driving into the timber, it was bent for rivetting.

(f) Rivets: Pl 14 d Top row

There is a large collection of rivets both from Peddabankur and Dhulikatta. It consists of a nail of square or rectangular cross-section riveted to 3 to 3 1/2 cm. square plates in either side. A rivet from Dhulikatta has two nails riveted to two long plates on either side. The plates measured 14 cm. long and 2 1/2 cm. broad and the nail is 5 cm. long which would be the thickness of the timber to which it was riveted.

(g) Staples Pl 13 d no 1

The staples are thick nails of rectangular section with loop at one end and pointed at the other to be driven into the timber. Two staples are found at Peddabankur, one is 12.5 cm. long including the loop with a diameter of 2.5 cm. The nail portion of the second staple is broken. The loop is 3 cm. in diameter. Staples were also noticed previously at Sisupalgarh.¹⁰⁷

DOMESTIC IMPLEMENTS:

Peddabankur and Dhulikatta have yielded a rich crop of domestic implements, constituting choppers, knives, razors, tongs or fork, lamps, ladles, domestic trowels, balancing rods, keys, stylus or engraver, antimony rod, finger or toe rings, balancing rod and ferrules.

(a) Choppers: Pl 13-a

There is a single big chopper with a 22.5 cm. long and 5 cm. broad blade and straight cutting edge. The blunted back splays out to the apex where the blade becomes broader. It has a 10 cm. long tang which tapers down.

A similar chopper found at Taxila¹⁰⁸ has a ^hsheath at the corner for handling.

The second type of chopper, also from Peddabankur, has both, the cutting edge and blunted back, take an upward curve to meet at the pointed apex. The blade is 27.5 cm. long and at the tang 4 cm. broad.

In the third variety the cutting edge takes an upward curve from the middle while the blunted back broadens from the middle and then takes a downward curve to meet the cutting edge at the apex. Usually the blade becomes broader from the middle upwards and downwards thus maintaining concavity below the middle. It is 26.5 cm. long from the tang upto the tip and 3.5 cm. broad above the middle. The 5 cm. long broken tang is rectangular in cross-section and tapers down.

The cutting edge of the fourth one is concave above the tang and takes downward curve above the middle and then abruptly curves upward to meet the straight blunted back at the backward curving tip. The sharp curved tip or apex is useful for paring off skin from the flesh. The blade which is widest below the pointed apex would give sufficient momentum to the knife to strike hard.

The fifth type must have functionally served the same purpose as the previous type. But in this case, the blade is concave below the middle and takes a downward curve to meet the blunted back at the pointed apex.

The sixth is smaller than the above knife with concave sides near the tang. Both the cutting edge and the blunted back take wider curves to meet at the pointed apex which is in a straight line with the tang. The knife blade measured 16 cm. long upto the tang which is broken. This shape is typical of the spear heads, the only difference being that the latter has both sides sharpened whereas the former is blunted at the back.

(b) Knives:

The type of knife from Peddabankur is usually found in a vegetarian kitchen. The 2 cm. broad blade gradually tapers upwards to the pointed apex to take a backward curve. There are only two specimens of this type, the rest twenty which are chopping knives may pertain to the non-vegetarian kitchen.

The next type, smaller than the above has almost a straight cutting edge. The blunted back curves downwards to meet at the sharp edge at the pointed apex. This is quite handy to cut smaller fish for the table.

The other type is little smaller with a 10 cm. long and 2.3 cm. broad blade. The sharp edge takes an upward curve towards apex to meet the straight blunted back. The square sectioned tang is broken and presently measured only 3 cm. in length. This knife is commonly used for killing the fowl by cutting its neck or removing gills of fish.

The last type which comes from Dhulikatta has its curved cutting edge taking a backward sweep like an arc and form into a hook at the apex. The tang has a loop evidently to suspend the knife with a thread. The present day shepherd community carry this kind of knife in the waist belt for cutting twigs, leaves and green seeds of acacia etc. for the sheep.

c) Razors i- (Pl 13. 6.)

Of the three razors found at Peddabankur one is bigger and the other two smaller. The cutting edge of the bigger knife takes a backward sweep and widens at the curved top. The tang

is 3 1/2 cm. long. The other razor is a damaged at the top and has 1.5 cm. broad cutting blade. The razors of this type, but for their occurrence at Taxila, are rare.

The bronze(?) razors found at Mohenjodaro¹⁰⁹ have two holes at one end to be riveted to a handle which was set at right angles to the blade as suggested by Mackay. But it could also be set vertically to the cutting blade. The other razor also from Mohenjodaro looks like a miniature battle axe but described as razor.

An iron object from Taxila¹¹⁰ was described as straight edged knife about 10 cm. long. It has a side-tang parallel to the blunted back. Functionally it must have served as razor than as a knife as the side tang is parallel to the blunted edge. When hafted to a wooden handle it would be more convenient to be used as razor.

(d) Fork

There is a single specimen from Peddabankur which is of doubtful identification. It consists of two prongs riveted together at the butt end and separated below. The prongs are thick and cannot be pressed together as to be used as tweezers. Apparently the implement could only be used as fork.

(e) Lamps: Pl 12 G no 3; also pl 13. C no 3

There are two varieties of lamps at Peddabankur. The first type has a shallow dish about 4 1/2 cm. in diameter with

a vertical handle bent backwards at the top for suspension. The other lamp had a bigger dish about 7 cm. in diameter but the handle is broken. The other variety of lamp is a solid dish with an out-curved lip. The dish was riveted at the base to a horizontal handle. This kind of lamps were possibly used for religious purposes for offering lamp to the deity.

The lamps found at Taxila¹¹¹ with a vertical handle was described as ladle. A similar object found at Nasik¹¹² with a vertical hand was described as lamp or ladle.

(f) Ladles: pl 13 c

There are two ladles from Dhulikatta. One of them has a deep cup and a horizontal handle. The cup is 6 cm. in diameter and 2 1/2 cm. deep. The handle is broken at the middle. The other ladle has a very shallow cup like that of a lamp with a diameter of 4 1/2 cm. and 0.5 cm. deep. The 18 cm. long handle has a square cross section. Analogies of ladles are noticed at Taxila¹¹³, Pauni¹¹⁴ and Nasik.¹¹⁵

(g) Domestic trowels: pl 13 d nos 243

Out of the kitchen repertory mention may be made of the domestic trowels. There are two types of which one comes from Peddabankur and the other from Dhulikatta. The trowel from Peddabankur has concave sides and a splayed out cutting edge. But for the tang at the middle of the base, the object could as well be designated as battle axe from the shape of which it had perhaps evolved. The other type is a common

trowel with a splayed and straight cutting edge. The sides gradually taper to the tang.

(h) Locks and Keys: P/13 L

Unfortunately no lock has survived. But two objects which could be easily distinguished as keys came to light. One key with a disc handle has its nail-end missing. The other key has a round disc handle. A small round plate was rivetted at the other end.

The keys found at Taxila¹¹⁶ have ringed handles and a set of teeth at the other end.

(i) Ferrules:

There is a large collection of rings used as ferrules or casings. There are two cylindrical rings of equal height of 4.5 cm. This is still commonly used as the hub of a wheel which rotates along with the wheel around the axle. The other type of rings are simple ferrules used for strengthening the ends of mullers of pestles. One such specimen has a diameter of 5 1/2 cm. with a wall height of 1.5 cm. Another smaller ring with a diameter of 2 1/2 cm. could be used as a ferrule for a walking stick or such other purpose.

(j) Finger or toe rings:-

There are 3 rings perhaps used as finger or toe rings, with a diameter of one and half to two centi meters. Out of these, two are spiralled and one is bezelled. Spiralled finger rings have been noticed in the cist burials with passages at Peddamarur. Several iron beads formed of small strips of iron coiled up like a volute spring were found in a cist grave at Kodidhasinur¹¹⁷

near Karaimadai R.S. in Coimbatore district.

(k) Stylus:

There is a single 12.3 cm. long specimen of a stylus. The thickened middle portion is square in cross-section and tapers to both the pointed ends. Similar stylia with square section was recorded at Hastinapur¹¹⁸ and Brahmagiri.¹¹⁹

(l) Antimony rods:

A single 14.5 cm. antimony rod or pin comes from Peddabankur, one end is thickened and rounded, the other tapering end pointed. Copper antimony rods were more common than iron rods. An iron antimony rod found at Peddamarur in Mahbubnagar district occurred in the megalithic context.

(m) Balancing rods:- Pl 12 a

There are seven balancing rods of iron, five longer and two shorter. The longer ones have an average measurement of 36 cm. rounded all over and thickened in the middle. The smaller ones measured 26 cm. long both are being equal in length. As there are no perforations to strings of pans, it appears, ^{they} were simply tied at the two ends. In the Buddhist sculptures at Nagarjunakonda¹²⁰ we find the representation of a balance from a panel illustrating the Sibi Jataka. There is single scaled balance consisting of a horizontal rod with a weighing pan at one of its ends. The pan appears suspended by means of three or more strings. A close study shows that the beam is graduated

by small incised marks all over at regular intervals towards the pan-end. At Amaravathi¹²¹ also the sculptures illustrating the Sibi Jataka revealed single panned balances.

(n) Snake: Pl. 12 c

One more interesting object is a iron figure of a snake with an 'S' curve at the head and a straight body below. It is 58 cm. long, from the end of the curve. Two holes were perforated near the top of the head at the place of the eyes and one hole below intended to represent the mouth. These perforations could also used for rivetting to the door or wall with nails. There is one more perforation at the end of 'S' curve, also intended for rivetting. The back of the figure is flat and the front is round. The horizontal stripes of the snake are represented by bands of parallel incisions at four places over the body.

COPPER OBJECTS:

There is a considerable number of copper antiquities from Peddabankur and Dhulikatta which included antimony rods, stylus, finger rings, ear spools, bangles, ladles, amulets, ankle rings pins etc.

(a) Antimony rods: Pl 23 d

The antimony rod is thickened at both ends. The sizes vary from 16 1/2 to 11 cm. The second variety have one end thickened and the other end thin and pointed like a needle. A needle measured 8 cm. and has one end pointed, the other is thickened. This could be used as a sewing needle, or stylus.

(b) Sewing needle:

This is a semi-circular pin pointed at both the ends like a suturing needle of a surgeon, but is very thick in the middle. It must have been used for sewing leather pouches etc.

(c) Tooth Pick:

There is a small pin about 4 cm. long with a loop at the thickened end and other end thin and pointed. It may have been used as a tooth-pick or to remove thorns from the soles.

(d) Ear cleaner: Pl 23. d top row no 9

There is a small pin with one end flattened like the head of a snake and the other pointed.

(e) Finger rings: Pl 23. b: also 24 a 46

The finger rings are mainly two varieties one is a coiled circlet and the other with bezel, sometimes inscribed with the name of the owner or incised with designs. Among the coiled ones a few rings have 7 to 8 coils and some have only two. There is also a simple wire ring. Among the wire rings some are thick, others are thin or flat.

There are three rings with bezels, one is plain the other is inscribed and the third incised with designs. The bezels are either rectangular or almond shaped or oval. One ring with a circular bezel is inscribed with four brahmi letters at the four cardinal points of the circle reading as 'ARALASA'.

One ring has double grooved incised design in the shape of eye over the bezel. It is a favourite design usually represented to ward off evils.

(f) Bangles and anklets: Pl 23 a

The bangles are plain without any ornamentation. An anklet of thin wire has one end coiled and looped and the other end hooked.

(g) Amulets: Pl 23 d bottom row

There are three amulets; one is cylindrical, the other is a square hallow box, and the third is a square plate. The frontside of the square one is stamped with the figure of a deity with his back foot raised and resting on the toes, the front firmly placed on the ground and the two hands upraised. The head is animal like but the other traits resemble those of the Monkey god. The figure is embossed inside and a square box of incised lines.

(h) Ear spools: Pl 23 c

The spools are of two types one is hallow with concave body and the drums decorated with concentric grooves. The other is a solid spiralled strip of copper. Both are perforated at the middle of the drums.

(i) Spoon: Pl 23 d

There is a shallow spoon with the cup measuring 3.8 cm. in diameter and has a 6 1/2 cm. long handle of square section. This may be useful for the apothecary for mixing ingredients or herbs etc.

(j) Stylised palm(?) Pl 23 G top row 1, 2, 3

There are three indistinct objects in the shape of stylised palm with 4 or 5 spikes over a flat circular rim. The rim is

sometimes decorated with a beaded design over concentric lines. One such palm has four spikes and the other one has 6 spikes with little tines in the shape of antler of a deer. With our present knowledge we can only describe them as finger guards worn while sewing with needle. On one of the pot sherd at Hastinapur¹²² a similar design was stamped probably to represent a cult object.

(k) Jewel Box:

Mention may be made of a jewel box which consisted of a shallow dish and a knobbed lid. The dish has a prominent cord at the rim to hold the lid. There is an embossed circular cord over the base inside. The rim of the lid is decorated with stepped mouldings and a prominent cord around the knob. The box was perhaps used for keeping valuable ornaments etc. Similar jewel boxes (abharana samudraka) are represented in the sculptures. At Nagarjunakonda¹²³ the jewel box is represented in a panel illustrating "Prince Siddhartha in the pleasure garden". A female attendant is shown carrying a rectangular box in her head. The Jataka¹²⁴ tales refer to such boxes, but they are generally made of costly material like ivory etc. In the Jaina¹²⁵ literature it is mentioned that the round caskets were used for keeping oil or anjana. In the Sanchi¹²⁶ sculptures a round casket similar to the Peddabankur type is shown hanging from the branch of a tree.

(l) Copper Rattle: Pl 23.d

The rattle found at Peddabankur in the Satavahana level was beautifully moulded in the shape of a frog-like animal, with two circles having central pellets representing the two eyes and a beaded line in the middle. There are also two prominent bands

across the forehead. The rattle has a loop for suspension. It has a clefted mouth and a small ball of copper was put into the hallow body for producing rattling sound.

The common kind of rattles found at Taxila¹²⁷ are made of terracotta in the shape of a bird. Other rattles from Sirkap area take a quasi-human or animal form to simulate the pomegranate fruit or vases. A copper rattle from Maski¹²⁸ is simple without any form and has double loops for suspension.

(m) Bronze or copper figures:

Dhulikatta excavation yielded a bronze or copper figurine of the mother and the child (ankadhatri). The mother is seated on a pedestal with legs dangling down. She holds a baby in her left hand while the right hand rests on her knee. The baby flexes its left hand to touch the left breast of the mother. The hair, eyes, mouth and ornaments such as ear rings, torque around the neck, another broad necklace, armlets, bracelets, waist band and another headed mekhala were crudely made in applique. On grounds of stratigraphy the figure may be dated to circa 2nd century B.C. The crude modelling of the figure is in conformity, with the archaic terracottas found in the same level.

Mother with child in her arms may probably represent the fertility cult but strangely enough its representation in the Mauryan and Sunga art¹²⁹ is extremely rare. It becomes common in the Satavahana and Kushana art in stone sculptures and terracotta figures. In Gupta period numerous plaques of the mother and child come from various sites in the Gangetic valley.

The standing woman holds the child in her left arm but in some cases the child touches the breast of the mother with its right hand. Agrawala¹³⁰ has classified the figures with the similar theme into three types namely kshiradhatri a woman with a suckling baby in arms, kridadhatri, a woman with a child in the left arm and a ball or rattle in the right hand. There is also one ankadhatri figure from Yeleswaram¹³¹ excavation from the Ikshvaku level. The mother holds the baby in her left hand and her right hand simply resting over the thigh. It appears the figure was made of a single mould.

LEAD OBJECTS:

Pliny¹³² says that India had neither brass nor lead but exchanged precious stones and pearls for those metals. According to Periplus¹³³ lead, copper and tin were imported into Barygaza, Muziris and Nelcynda. We may infer that the Karimnagar region as the other parts of India was not sufficiently producing those metals in the early historical period but depended on the imports from Rome and other western countries¹³⁴ such as Spain and even Britain.

Lead was chiefly imported together with copper for the coinage and it was also made into thin sheets for providing foils in the manufacture of mirrors.¹³⁵

The excavation at Peddabankur has yielded many coiled strips of lead, the purpose of which is puzzling. These coils appear like spools with concave body. Some coils have small perforations in the middle. Among the copper objects a similar spool with

concave sides and decorated with concentric circles was described as an ear spool. Similarly the lead spools with concave sides might have served as ear spools. The perforation in the middle may suggest that they were as well used as pendants.

Bead and bangles:

Among the other lead objects is a concave barrel shaped bead with bulbous drums on either side having a transverse perforation. A bangle 4 cm. in diameter is decorated with peripheral serrations like the cogs of a wheel.
PL 23 a bottom row no 2

GOLD AND SILVER SMITHY:

Pliny¹³⁶ distinctly states that the gold from Ganges was exported to the Roman Empire. It would be the alluvial gold of the rivers in the Chotanagapur¹³⁸ plateau probably found in the dust form.

Goldsmith or suvarnakara was always patronised by the wealthy sections of the society. Gold appears to have been a rare metal in this region and possibly imported from the mines of Karnataka as no gold mine is so far reported in the neighbourhood.

There are very few objects from Peddabankur which are mostly beads, made of thin foils of gold. There are also two short octagonal beads. The gold beads of thin foils are sometimes decorated with radiating lines around the string hole, enclosed by dotted oblique bands. The periphery was decorated with gadroons. As the foils are very thin and the bead is hollow

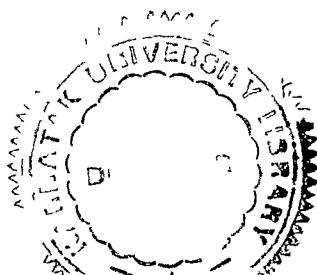
it is not known whether they were plated over lac or provided with some metallic support inside. However, it is noticed that a cylindrical turquoise glass bead was set inside against the perforations so that the bead would not be squeezed together ^{whole} with threading and usage. Another designed foil of a bead was found in small fragments. It was stamped with design of a beaded circle enclosed by dotted oblique lines and elliptical cusps.

There is a necklace of 34 beads (24 of amethyst, 7 of lapislazuli and 2 of gold and one of jasper. The amethyst and lapislazuli beads are irregular spheriod in shape and the two small gold beads are multifaceted. The hara or necklace must have had 24 beads which makes up the ardha guchha as prescribed by Kautilya.¹³⁸

The dearth of the precious metal is manifest from the objects found at Dhulikatta as well. They include a ring with eleven spirals. The rest are beads, among which there are three tabloid, three spherical (small and big) and two are gadrooned one with beaded double bands. The gadroons join two small rings on either side serving as string holes.

SILVER OBJECTS:

Silver is comparatively very rare and represented only by a waist band of beads. These beads, 21 in number, are tabloid with lugs on either side. Each bead is 2.3 cm. in diameter and 3 1/2 cm. long. They are hallow inside and made of thin sheet of silver.



BONE, SHELL AND HORN CRAFTS:

Besides metal smiths the artisans of bone, shell and horn had a very flourishing profession. It appears the above three types of material was used for different purposes. The horn objects mainly consisted of arrow-heads and beads, the bones objects are game-dice and the shell objects included ornaments such as ear-rings, finger-rings beads and bangles.

ARROW HEADS:

Besides arrow-heads of iron there are a good number of horn-arrow heads. It was a cheaper and easily available material. The flesh of the hunted animals such as deer, goat, etc. was consumed while the horn was converted as objects of daily use. We find references in Rigveda about arrow-heads of bone and iron (R.V. IV 75 pp.4-17).

The horn arrow-heads are mainly of two varieties - one is pointed at one end and the other is faceted by chiselling. The other arrow-head is pointed at both the sides. One arrow-head pointed at one end and faceted at the other, measured 10 cm. long. The other arrow-head measured 6.5 cm. One arrow-head was incised with parallel grooves at the faceted end for holding the strings of the thread while hafting. There are two specimens of horns directly used perhaps as arrow-heads without smoothening the middle portion. Both ends were chiseled. One such antler arrow-head measured 11 cm. long and the other 9.5 cm. Similar object found at Hastinapur¹³⁹ was doubted as stylus. But a stylus needs no chiselling at the butt-end.

Arrow-heads made of bone, ivory, and horn were noticed at Kausambi¹⁴⁰ excavations, their main concentration being in the N.B.P. Ware Culture.

Bone points or arrow-heads noticed at Nasik¹⁴¹ in the Andhra levels are of two types; viz; double ended points and tanged or chiselled points.

All the points from Peddabankur were made of horn. The double pointed specimens could also be used as styluses or pins. In the vicinity of a potter's kiln recovered during excavations at Peddabankur a bone point was also included among other objects. It must have been used by the potter for making decorative incisions on the pots.

The other objects of horn included two handles of, possibly, mirrors. One is decorated with mouldings of torus and reed beautifully turned on lathe. The other object, probably of ivory, decorated with mouldings of torus is much smaller and may have been used as a handle for antimony rod¹⁴² etc. as suggested by Sankalia.

BONE OBJECTS: pl 24 d

In Rigveda, dicing is referred to as aksha dyuta. In the Asthadhyayi of Panini the akshadyuta was elaborately dealt with. A player of dice, according to Pathanjali was known as akshika and a gambler as akshakitaya (Pathanjali Bhashya-1-390). Kitava or a gambler was an old vedic word. (Vedic index-I.156-7). Kautilya refers to the Superintendent of Gambling who supplied

aksha and salaka to the players at the rate of Kakani as hire per pair. The akshas seem to have been cubicals and salakas are oblong pieces marked on the sides with circles or points. In the Taittiriya Brahmana (Tait. Brah. I.7-10), 5 dice are referred. The pieces are called aksharaja, krita, treta, dyapara and kali (Vedic index-I.) The circlets with dots commonly noticed on the dice are probably known as ekapari, dvipari, tripari and chatushpari. Pari or paridhi literally means a circle.

In Bharhut sculptures¹⁴³ the akshas are shown as little cubes. In the scene of the Litta Jataka at Bharhut the game-board (dhyutaphalaka) has 26 squares. The number of cubicle dice visible is six. Another illustration of a similar game is seen at Bodhgaya. The square board has 8 squares on each side and therefore the game seen here may be identified as the attapada game of the Vinaya¹⁴⁴ texts. A game board of dice incised on one of the slabs of bathing ghat at Nagarjunakonda has eight squares in each wing. Krishna Murthy¹⁴⁵ identified the same as atthapada as referred to by Buddhaghosha. The game boards on the flooring slabs of the 48 pillared hall near the Ikshvaku burning ghat have two, three or five rows and each board is having the same number of squares respectively in each of its rows.

The bone objects mainly constituted game-dice of two types. One is oblong and the other cubical, majority of them being oblong. Each of the four facets consisting of one circle with a middle dot on one side, two on the other, three on the

third and four on the fourth. Some times the side with four circles has on the opposite side three circles and sometimes two. But in many cases the even number circles are opposite to even numbers and odds against odd numbers i.e. the face with four circles has two circles on the opposite side and the one with three circles has one circle on the opposite. The dice are of various sizes, one big die measured 8.4 cm. long and 2 cm. broad. A cubical die has 1.8 cm. broad sides. A die of horn measured 3.5 x 1 cm. Among the dice found at Yeleswaram and Nasik¹⁴⁶ there are two or three concentric circles with a dot in the middle. In Taxila¹⁴⁷ a good number of dice have been reported from the Indo-Greek and Saka-Parthian levels.

SHELL OBJECTS:

While the rich people were wearing bangles and other ornaments of gold, the common folk resorted to shell ornaments such as bangles, finger rings, ear rings etc. The shell bangles usually do not have any decoration and most of them were found in fragments. An ear ring measured 2.4 cm. in diameter and the tyre measured 0.6 cm.

BEAD INDUSTRY:

Artha Sastra¹⁴⁸ mentions several kinds of gems and their colours. The gem which has a pleasant colour as that of a red lotus flower or that of parijatha flower or of the rising sun was known as sauvandhika. It is possibly a variety of carnelian. The gem which has the colour of blue lotus flower

or of sirisha or of water or of fresh bamboo or of the colour of the feathers of a parrot was known as the vaidurya. The pushyaraga, somutraka and gomedhika are the other varieties of the same. The indranila or sapphire is characterised by blue lines or is intensely blue, or as blue as clouds. Nandaka, sravanamedhya, sitavrishti or suryakantha (sun stone) are the other kinds of gems. The colour of a diamond may be like that of a cat's eye, or of the flower sirisha (acacia sirisha) the urine of cow, the bile of a cow, like alum (sphatika) or the flower of malathi etc.

Bead making was a prosperous industry in the early historical period. The common semi-precious stones used for beads are carnelian, agate, banded agate, garnet, blood stone, beryl, jasper, amethyst, quartz, crystal, lapislazuli besides, glass, terracotta and shell. There are also etched beads of both carnelian and agate.

(a) Etched Beads:- PL 22.6

Among the semi-precious stones there are two varieties that invite special notice viz. the etched carnelian and agate. There are three etched carnelian beads, all are truncated barrel in shape. Two beads have white painted designs of chevrons with marginal bands on either side. The second variety has a middle band of horizontal strokes enclosed by double bands on either side. The etched agate bead is also truncated barrel in shape and decorated with double chevrons enclosed by double marginal bands.

The beads with chevrons inside marginal bands are very common among many south Indian megalithic burials. It appears that the pattern continued in the Satavahana period as well. Those from the megaliths are usually barrel shaped but plain cylinders¹⁴⁹ seems to have been preferred in the Satavahana period.

They are distributed over a very large area and are known to have been found at Nilgiris, Chandravalli, Kondapur, Kolhapur Maski, Pithan, and Sanganakallu.¹⁵⁰

The antiquity of etched carnelian beads may be traced from Mohenjodaro¹⁵¹ and Harappa¹⁵² dating from 3rd millennium B.C. The etching of these beads in which the pattern appears white on the natural colour of the stone is produced by drawing the pattern on the stone with carbonate of soda or some other alkali and heating it until red hot. A chemical change is thus produced in the material and the soda enters the surface in the form of opaque white spot. In the case of the rarer types of beads in which the pattern was made in black on a white background the effect was produced by first whitening the whole surface with an alkali and then drawing the pattern with a nitrate of copper or iron and refiring the stone.¹⁵³ One carnelian etched bead from Peddabankur seems to have been simply painted without etching but etching is visible in the black painted white agate bead.

(b) Carnelian (plain): pl 22.6

The plain types of carnelian are spherical, square cylindrical, barrel shaped, tabloid, biconical, hexagonal and pentagonal, of varying sizes. There is a single yellowish

carnelian or sard tabloid bead. Among the chalcedony-quartzes the most abundant were the carnelian and next comes those of sard. Pliny remarks that no gem was commoner than the sard. India has always been the most plentiful source of the finest red sard which comes chiefly from the Deccan traps.

(Pl 22 C rows 1 & 2)

The second favourite material was Mock crystal, the shapes included biconvex hexagonal (brilliant cut) standard truncated and convex quadrangular. These two varieties were noticed in the iron age context at Prakash.¹⁵⁴ The others are hexagonal barrel, tabloid, spherical, biconical truncated hexagonal and barrel shaped round etc.

Regarding the opaque blood stone and the translucent heliotrope or red-marked green chalcedony, Pliny¹⁵⁵ refers only India as the main source which is usually found among the Deccan traps.

Pl 22 a top row
There are 12 beads of blood-stone of dark-green colour, which included mainly of two shapes, spherical and tabloid. There is single tabloid bead and the remaining are spherical of varying sizes. The tabloid bead is 2 cm. in diameter with a thickness of 0.3 cm.

Beryl is represented by a single bead of truncated pentagonal in shape. No perforation was made. The jasper beads are dark-brownish in colour. One is spherical and other is tabloid. The spherical bead has an etched circle by the side of the perforation but no pigment was inlaid.

Some beads of lapislazuli are rectangular with a square cross-section and the rest are either spheroid or tabloid. It is not clear whether lapislazuli was produced in India or imported. The chief sources are Persia¹⁵⁶ Tibet, China and Scythia. The occurrence of large number of beads from several early historical sites may suggest that it was a local product. Beads of Lapislazuli are recorded at Nasik¹⁵⁷, Maski¹⁵⁸ Kondapur¹⁵⁹ Kaundinyapura¹⁶⁰ and Taxila.¹⁶¹

Next comes amethyst which included cylindrical spheroid and hexagonal tabloid. A single bead of long barrel hexagonal comes from Kaundinyapura¹⁶² and a single ovoid bead from Nasik¹⁶³. The lonely bead from Hastinapur¹⁶⁴ is truncated hexagonal. Another bead from Maski¹⁶⁵ is standard convex lenticular. There are 12 beads from Taxila¹⁶⁶ of hexagonal barrel, flattened hexagonal barrel, and triangular biconical and elliptical barrel.

Among the quartzes the agates are more particularly known as moss agate, banded agate or simply agate. It was a common and cherished material for beads, because of the variegated colours such as all black or pure white or with beautiful bands. Even large figures in round used to be carved in agates. Pliny and Philostratos draw special attention to the Indian agates of large size. The Romans must have obtained the best and largest agates from India which are still abundant in the Deccan and the Rajmahal traps of Bengal and Jabalpur. The mossagete and veined-agate comes from the Godavari, Krishna and Tungabhadra river beds and vallies.¹⁶⁷

of 226 bottom row no. 1

A single tabloid bead of banded agate which is beautifully banded in white, black and dark brown colours is the most elegant bead in the entire collection. A long barrel round bead with brown and pink bands comes next. The collection also included an etched white agate bead black painted with double chevron patterns between marginal bands. The other agate types constituted a spheroid with black patches, an all black-spheroid and a single cylindrical black bead. There is also an all black biconvex round piece without perforation.

Garnet (deep red and translucent) appears rare and is represented by four spheroid beads. There is one button shaped seal with an ovoid bezel inscribed with Brahmi characters as KA MA SA, datable to circa 3rd century B.C. Garnet sometimes known as ruby was used in rings and jewellery.

Glass Beads included tabloid, lugged tabloid, short barrel lugged, cylindrical, square cylindrical, spheroid, grooved cylindrical etc. The collection also included pulley shaped spools of deep blue glass with perforation in the middle. These spools have concave sides with diameters ranging from 2.5 to 3 cm. Mention may be made of a blue glass cylindrical bead with double torus mouldings over the body and multiple transverse gadroons along the body. The torus gadrooned glass beads appear to be popular in the Satavahana levels as indicated by their occurrence at Kollapur.¹⁶⁸ All the glass beads are either blue or light green (cobalt) in colour.

SHELL, HORN, LIME-STONE, MOTHER OR PEARL:

The collection from Peddabankur also included a good number of shell, horn, lime-stone, mother of pearl (Oyster), etc. The shapes are tabloid, biconical, short cylindrical etc.

JASPER:

There are only 4 beads of jasper in the entire collection. All of them are dark-brown in colour. The shapes are octagonal, lugged tabloid, tabloid, and spherical.

A hoard of pinkish vitrified glass beads was found in the excavations. These beads were cut-out of long tubes and are short cylindrical in shape.

TERRACOTTA: pl 22 class 3 fig 4

The largest collection of beads are of terracotta of different shapes, viz. pear shaped, spherical, gadrooned, rudraksha¹⁶⁹, along cylindrical and grooved, star-shaped wheel shaped etc. The gadrooned are tabloid and the entire perimeter of the tablet vertically grooved. There is only single specimen of rudraksha type with dotted bands in between marginal concentric lines. The third variety is a long cylindrical and horizontally grooved bead. Some of them have collars at both the ends and do not have perforations. A star shaped bead has seven arms radiating from a common disc which has a big perforation in the middle. A wheel shaped bead has collared hubs on either side.

The dotted design between bands is of common occurrence in the Satavahana period. Two such beads were found at

Keundinyapura¹⁷⁰, one is spheroid and the other is cylindrical but the bead from Peddabankur is exactly in the shape of rudraksha. The cylindrical bead with multiple grooves has its analogy at Brahmapuri.¹⁷¹

The arecanut or pear shaped bead has a universal distribution and found at a large number of early historic^{al} sites such as Nagarjunakonda, Yeleswaram, Kondapur, Taxila, Brahmagiri, Maski, Pithan, Nasik and Jorwe, etc.

ART:

Like architecture the sculpture also reached a very high degree of consummation. The Buddhist stupa at Dhulikatta was decorated with forty seven carved ayaka slabs found mostly in tact in course of the excavation. The carved slabs of the northern ayaka platform consisted of a five hooded Muchilinda Naga protecting the feet of the Lord Buddha. On both the flanking slabs pl 15 c are two ladies standing, the lady on the left holds a lotus bouquet in her raised left hand while the right one dangles down. She wears squarish ear ornament stamped with a beautiful lotus medallion, the profuse hair made into a side knot, a broad necklace of several strings a broad waist belt with a middle band of lugged tabloid beads (similar beads of silver are noticed at Peddabankur). She also wears series of bangles and a beaded wristlet with a squarish jewel in the middle and anklets of massive rings.

The lady on the right holds a flower in her upraised right hand and the left hand kept in skimbo over the left hip. Her flowing hair is made into a left side knot. She too wears squarish

ear ornaments stamped with rosettes, a broad necklace consisting of several haraq, ring-like armlets, series of bangles enclosed by ringed bracelets, a beaded mekhala (similar to above), the diaphanous undergarment secured by a knot below the navel and thick ringed anklets below a series of spiralled wire ornaments. She stands in a graceful feminine gait with her upper body slightly bending forward, the left leg firmly placed on the ground while the right one loosely resting on the toes.

On the right side pilaster of the Naga slab the head of an Yaksha was depicted enclosed by a lotus medallion. The hairs of the Yaksha is made into a top-knot. The Yaksha inside a lotus medallion may probably represent the Sun god.^{Pl 15 A} There is another figure of an Yaksha ^{Pl 15 B} represented as lifting, with his two upraised hands, a slab on which an ardhapadma is depicted. His ears, hands and legs are similar to the ears and legs of an elephant. He squats on the ground and the lion cloth covering his genitals, shown in incised vertical lines, flows downwards. In this aspect the Yaksha may represent Airavata who is considered as Indra or Sakra's Vahana elephant and considered as the proto-type of the elephant species and the supporter of the east-quarter. It may be the personification of Indra's elephant Airavata. The slab on which the Yaksha is depicted aptly faces east.

Another pilaster has a relief carving of the "Miracle of Sravasti" ^{Pl 16 C} in which Buddha is shown as a 'pillar of fire' basing over a heap-like mass of water and tongues of flame are shown as incised lines curving inwards like the two side-prongs of a

'Nandipada'. This is possibly an early representation of the Nandipada datable to 2nd century B.C.

Besides the solemn religious scenes the panels also display some sportive themes where a man, his genitals also prominently shown, holds the tail of fleeting tiger. Behind is the continuation of the scene in which a man is urging an elephant with his right hand while his left hand stretched out. It looks as though he is chasing an elephant.

In the rock-cut caves of Pitalkora¹⁷² two similar Yakshas are represented with their hands carrying the weight of the balustrade. Both are dwarfish and pot-bellied and have foreheads wrinkled apparently due to top heavy weight, bulging eyes and flat noses etc. These Yakshas appear earlier than their massive counterparts in front of Cave-3 of Nasik.¹⁷³

PHANIGIRI:

The artistic representation at Phanigiri¹⁷⁴ is quantitatively less, yet qualitatively represents the highest tradition. In course of scraping operation at Phanigiri a beautiful limestone sculpture of Yaksha came to light. He is shown with bulbous eyes and an aquiline nose. In the elongated ear lobes there are some ring-type ornaments. He wears a turban around the head. On a pilaster the figure of a dwarfish Yaksha, probably Kubera, with a protuberant belly was represented in shallow relief. He wears chakrakundalas, a round torque, broad bangles and a turban with a middle knot etc. He holds a long staff, in his left hand. In another panel there is a representation of

a fleeting bull chased by an elephant. The elephant thwarted by a man standing in the middle of the two animals by showing his stretched hand towards the elephant.

TERRACOTTA OBJECTS:

The excavation at Peddabankur and Dhulikatta have yielded many terracotta figurines of human beings and animals. Some of them are hand-made and others are cast from double moulds. The crude figurines of bovine animals such as bull etc. are characteristic of the proto-historic period, but stylistically they cannot be attributed to any particular phase. Some of the archaic terracottas may be compared with those found at Bhita, Kausambi, Pataliputra, Ahichchatra, Mathura, Yeleswaram, Nagarjunakonda etc. As already noted two methods of modelling the terracottas were noticed, one by hand and the other, employing a double mould. The hand made figures are made out of a single lump of clay pressed by hand to divide the lump into three parts. The top portion showing the head is made into a round mass without retouching. Sometimes the nose was pinched and the eyes executed in applique. The hands, the legs, and breast were drawn out like pointed spikes.

The moulds were possibly made of both terracotta and wood. But the Indian climatic conditions would not allow any wood specimen to survive. Yeleswaram excavations recorded a large number of terracotta moulds from both Satavahana and Ikshvaku levels. They included a double mould ^{of a} ram, mother goddess, a

scythian soldier, besides moulds for making designed miniature pots and moulds for stamping on bigger pots.

There are two methods¹⁷⁴ of manufacture of clay figurines by double mould, by pressing the two moulds on a solid lump of clay and paring off the surplus clay with a sharp instrument. The other method is to press the wet clay into two different moulds of the front and back portion separately so as to form hollow shells. After detaching the casts from the moulds the two halves were luted together by pinching or applying clay with water.

The double mould of ram from Yelavarayam is hallow at the base. The two moulds of the rear and front portions must have been tied with a thread outside and wet clay was pressed in through the hollow which is wide enough to allow the thumb inside to press the clay over the negative. The moulds of human figures also have holes at the base but are narrow and insufficient to insert clay with fingers. The terracotta moulds of Yelavarayam were made of finely levigated clay and well fired to red colour. The backs of the moulds were smoothened with hand by application of water.

FINISHING:

After detaching the casts and luting them together the figures were retouched in order to deepen the grooves and incise designs. Occasionally the figures were dipped in a thin slip or alternately the slip was applied with a brush made of some fibre.

BAKING:

The terracottas were baked¹⁷⁶ in a closed or open kiln but the heat was never applied directly. The objects to be baked were kept in an earthen vessel which was covered from outside with char-coal and husk. The outlets provided at the bases of the figures would allow the gas to escape.

ARCHAIC TERRACOTTAS:

The archaic terracottas were found at Peddabankur in large numbers in the Mauryan and Satavahana levels. They comprise of human and animal figurines. The figures are hand-made by modelling the clay to the desired shape, but the similarity of the shape and sex (female), of many figures may indicate that they represent fertility cult. The heads of many figures are broken. The hands are pinched like pointed masses, the breasts protruding and pointed, the attenuated waist line with or without a navel broadens towards the hip. No genitals are shown. The face is just a featureless mass occasionally with a halo-like dressing. The back is flat. This kind of figures have a wide distribution as noticed at Yeleswaran, Nagarjunakonda, Nelakondapalli, Dhulikatta and Peddabankur. The figures from Dhulikatta Peddabankur and Nelakondapalli appear to have been cast on the same mould. Apparently these figures were manufactured at a place and exported to other places.

THE FIGURES:Male figures:

This type consists of crudely made figures of a male

deity with hands and legs shown as tapering masses, pinched nose, the eye socket filled-in with applique eye balls. The head tapers to a point and has a prominent band at the top. The waist-band is shown with incisions. The second figure, also a male deity, with similar hands and legs but the feet curve forward. The third figure has flattened ears and pinched nose, pointed hands and legs.

Female Figures:

Among the female figures one has its head and hands slightly curved forward, breasts indicated as a single protuberant mass. The other figure, also a mother goddess, with head shown as a thin trefoil mass has pointed hands and prominent breasts, but the body below the breasts is broken. This figure comes from pre-Mauryan level. There is another figure of Mother Goddess with head shown as a prominent mass like a round halo at the back, and breasts pointed. The hands and body below the waist is broken. The head of the Mother Goddess, with a halo or the head itself shown as an inverted crescent is exactly similar to the Hittite Goddess¹⁷⁷ reported from Alaca Hüyük of the early Bronze Age which was dated to circa 3000 B.C.

ARCHAIC FIGURES OF BIRDS AND ANIMALS:

The collection also included a few birds and animals which were crudely modelled and defy proper identification. The animal figurines are mostly humped bulls. There are a few

bovine animals with hump. There is a figurine of a cock, 6.5 cm. long made of well levigated clay and backed to a buff colour. It has prominent crest, pointed ears and the bill is broken. There is another bird appearing like a sparrow which is slightly broken at the back. The third is a nondescript bird with open bill. The body below the neck is broken. The object was perhaps used as a knob of lid.

There is only one specimen identified as an elephant among the archaic types, with its head and legs damaged. A figure of a she-boar with head and legs broken has its sex indicated. A figure of a cow has a slightly curvaceous snout. The udder and the tail are shown. Another bovine animal similar to above is also shown with teats and a small tail. A bull figure is depicted with horns and hump. The snout is shown like a pointed mass and the eyes pinched. The figure of a ram has a pointed snout and horns are shown like discs. A small figure of a dog has a pinched snout and prominent ears. The head of an elephant with a lifted trunk and torso, broken is found in the pre-Setavahana levels.

TERRACOTTA AND KAOLIN FIGURES FROM DOUBLE MOULDS:

The figures cast-out of double moulds include three types of Mother Goddesses. The first type is a figurine with out-stretched hands and arms lifted. She wears a double makara-type headdress secured with a band in middle. She is decorated with a necklace, waist band (mekhala) of a wavy design and beaded

kankanas. The flowing hair is made into a back-knot. This type is commonest in the late Satavahana and Ikshvaku levels at Yeleswaram¹⁷⁸, Nagarjunakonda¹⁷⁹ and elsewhere. We find a similar figure found in the rock bruising of proto-historic period noticed at Mudumala in Maktal taluk of Mahboobnagar district, which appears to be the arch-type. It may be recalled here that a Phoenician Mother Goddess Baal or Astarte dated to 1300 B.C. carved on an ivory plaque found at Beida¹⁸⁰ in Syria is now exhibited in Louvre Museum at Paris. She is shown with her two arms upraised and carrying in her hands sheaves of fodder baiting two goats on either side. The Phoenicians brought elephant tusks from India or from Punt via the Red Sea for the carvings in ivory. The Goddess from Peddabankur with her hands upraised but without any fodder bait may represent the Goddess of Plenty. Some of the figures with out-stretched legs have genitals indicated. In that case she may represent the Goddess of Fertility and Plentitude.

PLATE C

The second type of Mother Goddess from Peddabankur is made of knolin which has universal distribution¹⁸¹ among the early historical sites. The head, the right leg and back portion of the figure are missing. Her left hand simply rests on the thigh. A parrot perching on the right arm is nudging the breast of the Goddess with its bill. The goddess holds a bunch of fruit in her right hand. She is profusely decorated with a broad necklace ending in a locket above the prominent naval,

the bangles, a beaded waist-band of double rows and keyuram above the feet. Nudity is also indicated. In another figure of the same Goddess, she wears a beaded yajnopavita and a beaded necklace with leaf pendants. The left breast is partially covered with the leaf (pipal) pendant. Here the parrot is shown with its head bent below the breast of the Goddess. Nudity is indicated.

Parrots are domesticated in the early periods usually to convey messages between lovers, as the bird was stated to be the vehicle of the God of Love, Manmatha. In Meghaduta of Kalidasa¹⁸² the Yaksha suggests that his beloved would be engaged in conversation with the pet parrot in the cage, interrogating the bird whether it remembers its master who loved it so well.

In one of the ivory carvings from Begram dated to 2nd-3rd century A.D. we find a beautiful lady speaking to a pet parrot. Similarly one of the Yakshis from Bhutesar near Mathura speaks to pet parrot on her shoulders. The parrot is shown nibbling her locks. The Yakshi carries a cage in her right hand. In one of the imprecatory verses of Ramayana the Goddess Vagdevi or Saraswathi is described as holding a rosary and a book, a lotus and a white parrot.

There is a beautiful ivory sealing from the Dhuliutta excavation inscribed with brahmi characters as "AJANI SIRIYA (PL18.2)
GAME KUMARIYA". It is emphatically stated in Artha Sastra that

in the centre of the parapets of a fort, an abode of the Goddess Kumari (Kumaripuram) should be constructed. Dhulikatta being a fortified town, a temple or abode dedicated to the Goddess Kumari must have been situated therein. Then who would be this Goddess Kumari? Kumari literally means one who is unmarried. Kumari is the Goddess who bestows children. Parrot being one of the attributes of the Goddess Kumari, the above mentioned nude Goddess with a parrot may be the Goddess Kumari.

The third type of Mother Goddess is found at Dhulikatta. It is made of finely levigated clay. The back portion and body below the breasts are missing. The Goddess holds her prominent ^{Al / Y ^ a} breasts with her hands from below. She wears a beaded ^A yajnopavita passing over the left shoulder through the middle of the breasts, a torque (kanthi or griveyaka) around the neck crescentic ear ornament (chandra karnika), a beaded fillet over the fore-head with a crest jewel and beautifully combed hairs towards right (probably made into a side-knot). The ornaments such as the kankana, keyuras and the lalatika (crest jewel) are in a pleasing harmony with the smiling expression of the benign Goddess with parted lips narrow eyes and bulbous cheeks.

We find similar Mother Goddesses¹⁸³ from Babylonian, Elamite and Neo-Babylonian civilisations dated from 2nd millennium B.C. where the Goddesses hold their breasts with hands. It may possibly represent the Goddess as giving milk or life juice. These figures have been ascribed to the Bronze Age and dated to circa 2500 to 1200 B.C.¹⁸⁴ The Babylonian Mother

Goddess, Nana or Ishtar¹⁸⁵ is not only the source of Fertility but also the Gracious Mother of Mankind and the Goddess of Love. In that aspect she is the Aphrodite of Babylonia. The Goddess Ishtar was some times identified with Venus "the daughter of Sin".

On one of the ivory mirror handles from a tomb on the hill of Juno, Carthage, a Phoenician Goddess¹⁸⁶ is represented as holding her two breasts from below. The Goddess is shown standing and has a long decorated girdled robe which reaches to the feet.

This type is very similar to the nude female figure with hands doubled upto touch the breasts as cited by Ananda Coomaraswamy which is said to have come from the Peshawar district. The figure of Mother Goddess from Mathura¹⁸⁷ of the Kushana period dated to 2nd century A.D. now displayed in the National Museum, New Delhi is identified as Sri Lakshmi which apparently is ^{un}correct. The Goddess holds her right breast with her left hand while the right hand points towards the sex.

Among the Peddabankur figures there is a kaolin figure of a boy with a turban-like headdress. He wears heavy kundalas resting over the shoulders and the right hand simply kept over the thigh. The figure is devoid of other ornamentation. As such, it may be the representation of a commoner boy of the early historical period.

There is also one dome-shaped terracotta figure which is (6 cm. high) hollow inside. It was represented at the top of the dome with the head of an Yaksha.^(See on the Cover) He wears a broad beaded

fillet over the forehead, hairs shown in ringlets, bulbous eyes and parted thick lips. The elongated ear lobes carry chakrakundalas. The head of the Yaksha is enclosed in tongues of flame shown as a circle of loops. The body below the loop circle is incised with a lotus design. The Yaksha heads with the turban etc. enclosed by lotus medallians are found in Bharhut sculptures.¹⁸⁸ On one of the syak slabs of the Buddhist stupa at Dhulikatta dated to early second century B.C. there is an Yaksha figure inside a lotus medallian. The face of the Yaksha with rayed circle enclosed in a lotus medallian may be a representation of the Sun God. In Rigveda¹⁸⁹ Agni is sometimes spoken of as the Lord of the Yakshas (Yakshadhyaksha).

There are a few animal figurines such as squatting elephant with an ornamental strap, a caparisoned horse and a ram among the figures cast out of double moulds.

From Dhulikatta there is a hand-made red-slipped and polished figure of probably a male (48.6 cm. long) wearing a hat-like head-gear. ^{PL 17 b} The head-gear has a prominent brim with a jewel attached to the right. The eyes and ears (with discular ear ornaments) are made in applique. The figure seemingly, is the mouth of a water jar with parted lips to simulate a laugh. The mouth is wide open to let out water. There is a hole at the top of the hat probably to insert an ornamental flower. This is altogether a unique figure without any parallel so far in the Indian terracottas. Similar figure but of a lady with a different head-gear carved on ivory was reported

from Nimrud¹⁹⁰ known as "the lady of the well" dated to 8th century B.C. The specimen from Dhulikatta was possibly modelled as the head of a spout of a jar, to draw out water through the mouth of the figure.

TERRACOTTA SEALS AND SEALINGS: Pl 18

The excavations at Peddabankur and Dhulikatta yielded three inscribed seals in brahmi, two button seals, and some ornamental seals. One terracotta seal is inscribed in brahmi as "MAHA TALAVARASA VAJASAMIKASA SEVA SABHA"^(Pl 18.a). A beautiful horse, without trappings, was stamped in the middle of the inscription. At the back of the seal is an impression of threads. The brahmi characters are datable to 1st century A.D.

During the Mauryan, Satavahana and Ikshvaku periods the title Mahatalavara was borne by high dignitaries of the state. Some of the Mahatalavaras bear metronymics similar to those of the kings. The Mahatalavaras¹⁹¹ were feudatories under the Mauryas and later Satavahanas. The feudatory, Talavara may be an officer with judicial functions like Kothwal of the Moghul period. Vaja or Vaji may literally mean war-house, and sami (Swami) is the head. Seva Sabha may mean a guild or union in the service of the general in charge of the cavalry of the whole kingdom or a part of it. These sabhas or guilds were possibly entrusted with the maintenance of a fixed number of horses to be supplied during times of war. The practice of maintaining of the cavalry and supplying to the king continued upto the Vijayanagara period.

There is a seal incised in a circle on a black and red ware rounded pot sherd in brahmi characters reading as "Vijaya Pursharakasa ^(A/8.a) Rattasa".¹ The seal was found in a level datable to 1st century B.C. In the middle of the inscription the figure of a plough with a yoke was incised. The yoke has two pegs on each side for fastening the leather thongs round the neck of the draught animals.

During Satavahana period the empire was divided into sharas such as Soparahara¹⁹² Govardhanahara¹⁹³, Mamalahara¹⁹⁴ Satavahanihara¹⁹⁵ etc.

These sharas were governed by amatyas¹⁹⁶ (amacas), who were far inferior in status to Maheratis. The Maharathis appear to be the hereditary governors of the provinces. Satavahanihara, Pallava rastra and Vaingeyaka vishaya¹⁹⁷ would probably denote a territorial division not bigger than a modern district. In Asokan inscriptions¹⁹⁸ the Rastrikas have been specially mentioned in the group of Bhojas and Pettanikis. In Anguttaranikaya¹⁹⁹, rashtrikas were hinted as a board of elected leaders. If rata may mean rastrika the sealing may belong to a chieftain of Vijayapurahara. But a chieftain may not be so destitute as to inscribe his seal on a rounded pot-sherd. Moreover the plough in the middle is a pointer to the nature of his profession. He may not be a rastrika as such but a common cultivator similar to a modern Reddy.

In Hastinapur²⁰⁰ excavation, a terracotta seal was found bearing the inscription in brahmi as Thi(?) Kaputrasa Jayasenasa.

Roddisa. The word Roddisa may be parallel to the modern Reddis of the Deccan whose profession is agriculture.

Now the problem is to find out the location of Vijayapuri. So far, we have one Vijayapuri at Nagarjunakonda in Guntur district. It was the capital of Ikshvakus during 3rd century A.D. If shara comprises a territory equivalent to a modern district, Peddabankur which is more than 300 km. away from Nagarjunakonda could not have been included in the Vijayapuri district. Moreover, the seal which is a negative would always be kept under the custody of the owner who stayed at Vijayapuri. As such, there was one more Vijayapuri round about Peddabankur or Peddabankur itself known as Vijayapuri.

The seal already noted, has a yoked plough in the middle which indicates the agricultural profession of the owner or some sectarian affinity of the owner or the group which used the plough as their lanchana.

There is a button shaped seal of garnet (deep red translucent) and inscribed as Ka ma sa with a loop design at one end over the ovoid bezel of the seal. The design is a square with the intersecting lines at the corners project out to form loops. The brahmi characters are similar to those of the Asoken period. As such, it may represent royalty or simply an auspicious symbol.(Fig.C)

POTTERS AND POTTERIES:

Pottery formed one of the most essential necessities of the daily life of the common people. Metals always being scarce

and costly, pottery occupied a very important place in the life of the people. The potter or shatakara who always worked on the wheel was also known as chakrika or chakrakara.

The entire range of pottery recovered from the early historical site is mostly wheel-made, the fabric ranges from fine to coarse. Most of the pottery whether it is a storage jar or alota of daily use were turned on wheel. Broadly the pottery may be classified into the utilitarian and ritualistic, the former being more numerous. The types included, jars, water vessels, carinated bowls, lid-cum-bowls, lids, lotan, small bowls, or chattis, measures, lamps, lamp-stands, dishes, etc.,. The pottery from the early phase was marked by profuse occurrence of tan ware besides finely polished red and black and red polished wares. In the later levels, the tan ware gradually diminished and was substituted by red polished wares. The black and red ware also gradually loses its lustre and becomes drab during the Satavahana period. The coarse red ware becomes profuse in the later phases. Besides these main wares there is an occasional occurrence of all black ware and other aberrant wares.

A. Storage Jars:- Pl 19 a

The storage jars are available among the two kinds of wares i.e. the tan ware and the red polished wares. One tan ware storage jar has a rolled and out-curved rim. This pottery is well-burnt. The tan slip is burnished to high polish and still retains it. In the other jar which is smaller than the above

the slip is lighter in colour and much abraded over the rim. This has an out-curved and grooved rim with a flange outside. The slip inside is a little darker than outside, but less burnished.

Among the red ware jars some are decorated with designs and some are plain. The first type has a thickened and a faceted rim. It has a thin red-slip and is burnished only on the exterior. The inner surface is unburnished. The second variety has a slightly out-turned rim with a squarish cross-section. It ^{is} uniformly well burnt and has a thin pale-red wash and burnished outside. No such slip or burnishing is visible on the interior. The third type has an out-curved and flanged rim. It was decorated with a wavy and finger tipped design at the flange. As the pot is much abraded neither slip nor burnishing is visible outside but the tan slip inside is visible. There is a lot of lime encrustation inside the pot suggesting that either it was filled-up with lime or was given a lime coating as a preservative for food grains. The second variety has an out-turned and elongated flanged rim and grooved internally. The slip outside is much abraded and the derraissants such as sand etc., are exposed. The next type is also a red-slipped jar with an out-turned and grooved rim. It is decorated with a finger-tip design at the flange. The slip on the exterior is completely lost. The next variety has an out-curved and grooved rim. The red slip is visible outside, but the inner surface was left unslipped. The jar is decorated

with a band of pinched triangles below concentric grooves near the neck. The other variety is a nail headed obliquely faceted rim. It is slipped both inside and outside. The storage jar may have been used for various purposes such as storing water or grain etc. A squatish jar from Yeleswaram, a unique specimen of its kind (56 cm. in diameter at the mouth and 65 cm. high inside) is decorated with an incised fish pattern at the top of the flat rim and gadrooned knobs at the edge. Over the shoulder, tree symbols were stamped in ovoid cusps. Below is another band of circular cusps bearing the figures of bull, horse lion and Gajalakshmi. At the middle is an applique band of oblique strokes. Probably the jar must have been used for some special purpose. A storage jar from Kondapur was inscribed with brahmi letters at each of the cardinal points.

B. Smaller Jars:

The first has a beaded-rim and the sides are almost straight like a water trough. It is decorated with an applique band of finger print design. No slip is visible outside. The second type is similar to the above but smaller in size. The rim is rolled and decorated with a band of finger impressions below the rim. The third variety has an out-curved and thickened rim which is internally grooved. The jar is decorated with a band of oblique grooves at the lower end of the rim outside and a herring bone pattern at the neck. There is also a single

all black ware jar with an externally curved and flanged rim. The slipped body is burnished to smooth surface outside.

The bigger jars are to a height of 75 to 100 cm. with varying diameters of the mouth. These were probably used for storage of grains, a practice which continued till the present day in some parts of the region.

C. Water Pots: - Pl 19.6

The water vessels or kumbhas are usually globular in shape convenient for carrying water from rivers, tanks and wells. The rims are sometimes beaded, flanged and grooved or simply flanged or externally thickened. As they are meant for daily use much decoration is not noticed. They are sometimes tan or red-slipped but frequently the slip is abraded due to constant use and wetting while in use.

D. Carinated Bowls: - Pl 19.6

There is a considerably big collection of carinated bowls from all the levels, which appears to have universal distribution in the early historical period. Most of them, whether big or small, have flanged rims with an occasional decoration of concentric bands above the carination. In some cases the carination is very prominent and in others the pot is rounded. The base is sagging or rounded. The slip is light. Soot-stains appear at the base of some pots. A few all black ware bowls are also included.

The other variant is a deep dish with an externally thickened rim and a round body. Carinated bowls were recorded

from Brahmagiri²⁰¹, Arikamedu²⁰², Nasik²⁰³ and Sisupalgarh.²⁰⁴

E. Lid-cum-bowls:

They are mostly of matted red ware. The convex-topped lid is usually ledged under side and the body below the ledge tapers to a lipped mouth. The mouth is lipped to facilitate holding. Sometimes it is decorated with double bands below the rim. In most cases no slip is visible, but there is a lone specimen of tan slipped lid. Similar lids also come from Nasik²⁰⁵, Brahmagiri²⁰⁶ and Sisupalgarh.²⁰⁷ In the ordinary lids the rim is sometimes thickened. There are also hat-shaped lids, with rims thickened under side. There are also three black and red ware lids, one has an out-curved rim and rounded base, the other is like a shallow platter with an internally grooved and curved rim. This is a tan black ware lid, black inside and tan outside. The third lid appears like a shallow dish of black and red ware with a sharply curved rim to act as a flange. They are in dull red ware.

Mention may be made of the knobbed lids. The lower part is an inverted bowl joined to the knob with a solid stem. The knob consists of a solid barrel pointed at both ends fixed to the stem perpendicularly. All black ware lids with similar knobs are found in the megalithic burials at Pochampad. The second variety is an all black ware lid with a smaller knob. The exterior is not burnished and looks drab.

F. Deep Bowls: pl 19.c

There is a very prolific collection of deep bowls, majority of them having slightly incurved featureless rims. The entire collection is of coarse black and red ware. Some bowls have out-curved rims and decorated with grooves at the neck. There are also many black and red ware miniature bowls. Deep bowls with featureless rims are very common in early historical sites as at Nagarjunkonda²⁰⁸, Amaravati²⁰⁹, Kondapur²¹⁰ Salihundam²¹¹ and Yeleswaram.²¹²

G. Dishes: pl 19.c

The next important type is the dish which occurs in large numbers. Most of the dishes are of black and red ware and those found in the earlier levels are highly polished. Also from the early levels there are tan and black ware dishes with incurved rims. There is no doubt that these were used as table ware, as the shape does not differ much from the modern metallic plates.

H. Globular Vessels: pl 19.c

These are squatish vessels with globular or ellipsoidal body. One from Peddabankur is an all black ware vessel with an out-turned and internally thickened rim and has an ellipsoidal body, decorated with concentric incised bands below the rim. The other also from an early level has a very fine tan slip but polished only on the exterior. It is slightly carinated at the shoulder and decorated with a single groove at the carination.

Analogies of vessels with globular bodies come from Salihundam²¹³ and Brahmagiri²¹⁴.

I. Straight or concave sided bowls: Pl. 20.1

These vessels have straight or concave sides and out-turned or flaring and flanged rims. As they were intended for daily use~~s~~ these do not have any slip. Even the slipped vessels are much abraded. One bowl with a height of 13 cm. has concave sides and a splayed-out rim. It has a light red wash and grooved decoration in the middle and at the carinated base. The second vessel is also straight sided and has a flanged rim, and probably an applique handle which is broken. It is grooved below the rim and at the bottom. A light red slip is visible. The third one has an out-turned flanged rim, carinated at the convex base. The vertical sided vessels sometimes with a concave profile and splayed out featureless rims are found in Malwa ware at Navdatoli.²¹⁵

J. Spherical Bowls: Pl. 19.c

There is a single spherical bowl with convex sides and featureless incurved rim. The base is rounded. The fabric is very thin and has a light pinkish wash and appears to have been burnished with a spatula, which resulted in a blotchy surface. The clay is very finely levigated. We have analogies of this type in the Malwa ware from Navdatoli²¹⁶ where the bowl occurred in a reddish cream slipped ware and was painted with irregular circles. The Peddabankur bowl has

no painting but must have been used for a similar purpose. Such bowls were commonly used for begging. In the Vinaya Texts details^{ed} rules are given regarding their making and use. In a panel illustrating episodes in the career of Buddha at Nagarjunakonda²¹⁷ four kings are shown each holding a spherical or deep bowl. In the same panel a similar bowl is also seen in the hands of Buddha.

K. Lotus: pl. 20 a

Lotas are miniature vessels with a globular body and have a rounded base. Some have narrow-necks and out-turned rims. As they were intended for carrying liquids like water or milk etc., the mouths are usually narrow. There are three vessels, one has an elongated neck and an out-turned splayed out rim with a flange. It is decorated with an embossed band at the neck and incised circle at the shoulder. The body tapers to a flat base. The tan sliped surface is crackled. The second one is a black and red ware pot and polished outside. It has an ellipsoidal body with a convex base. The rim is slightly out-turned for grip. The third is matted lota and has an ellipsoidal body. The splayed-out rim is grooved inside. Similar lotas are found at Taxila²¹⁸ and Salihundam²¹⁹. In the sculptures at Nagarjunakonda a lota with a spherical body is carried by a male in his left hand in a panel depicting Mahapadama Jataka²²⁰. The fourth one with an out-turned rim has a corrugated body and a convex base. No slip is visible.

The next type has an out-turned rim with a single corrugation in the middle and a convex base. The inner surface has a black slip and the outer has a light tan slip. Similar corrugated pots otherwise described as double pots were found at Jorwe.²²¹ In profile, it looks like a pot over another pot. Similar corrugated pot but smaller than the above was found in an early historical brick well at Dhulikatta.

L. Pyriform Wine Vessels: Pl 20. 6

There are three unique all black ware pyriform wine vessels. The first vessel has a very narrow neck and an out-turned flanged rim, grooved inside. The mouth is 2.4 cm. in diameter and the height of the vessel is 18 cm. From the neck downwards, the body takes a wide bulge and then tapers down from the shoulder to a flat base. The second vessel 18 cm. high, also has a narrow mouth, 2 cm. in diameter, with a similar body as above. The third, 13 cm. high vessel, is smaller than the above two and has a little more wider mouth (2.7 cm.) with a deep groove inside the flanged rim. It has also a flat base and measured 13 cm. high. Wine jars (surabhanda) from Taxila²²² are tall narrow-necked vessels of buff or buff-red clay with a porous texture to help keep the liquid cool. Sculptural representation of wine jars are noticed at Sanchi²²³ and Nagarjunakonda²²⁴. The wine jars from Dhulikatta almost appear like the Roman or Greek amphorae²²⁵ but without handles. The function of the amphorae was to

contain wine or oil but it is likely that the shape is indigenous, not imported as we have the pyriform urns from Porkalam²²⁶ of a very similar shape.

M. Lamps:

There are a good number of lamps. They are shallow dishes with a lip for the wick. The sizes vary from 11.5 cm. to 6.5 cm. All are in dull red ware. The fabric of the smaller lamps is coarser than the bigger ones.

N. Ring Stands:

There are two ring stands, both are of tan ware. One has a wide base of about 17 cm. in diameter, ledged underside. The stem is decorated with multiple corrugations and ridges. The top portion is broken. In the other stand, the wide base is decorated with a band of finger tipped design. It is highly polished on both sides, but abraded on the exterior due to wear.

P. Finials: Pl. 20 c

There are two finials of terracotta, coarse red in colour with stepped mouldings and knob at the top. One finial has seven mouldings or ridges and a pointed knob at the top. Below the lower-most moulding is a hole probably for inserting some flag like object or keeping the finial in position.²²⁷

In Bharhat sculptures we notice short and long finials at the top of the door-ways. One tiled hut²²⁸ has a long finial at the top. In one of the sculptures at Sanchi²²⁹ the rounded gate-way has four finials at the top. We also find in

in the Nagarjunakonda²³⁰ sculptures/a panel depicting the "dead body scene" the rounded torana over the gateway has three finials with mouldings. Terracotta finials are commonest in many other sites in India with a variety of shapes, such as at Kolhapur²³¹, Bhita, Ramathirtham, Ujjain and Kondapur.²³²

RITUALISTIC POTTERY:

There are very few pots to be characterised as ritualistic wares. Among them is a globular vase stamped with triratna or nandipada symbol at four places. In between the two stamped nandipadas three perforations were made, one at the top and two below which in all likelihood may represent the "visage". In one of the megalithic burials at Peddamarur in Mahbubnagar district a pot with three such perforations was found at the north-east corner inside the cist. In the Indian architecture (Vastu Sashtra) the north-east corner is said to be presided over by the Goddess Lakshmi. In the visage pot at Dhulikatta it is interesting that the three perforations are noticed with nandipada. As such the pot may represent the mangalsakalasa into which the Goddess was invoked (ayahana). A vessel known as bhingara²³³ (Skt. bhringara) of the Jain literature of bhinkara²³⁴ of the Buddhist texts was usually ornamented with triratna symbol.²³⁵ The word bhringara sometimes appears as an auspicious symbol²³⁶. Bhringara literally means a golden pitcher used at the inauguration or coronation of a king. In the ordinary usage it may mean any pitcher or vase used for religious purposes.

b) Dishes:

As mentioned previously the excavation yielded a large collection of dishes of black and red ware, made of finely levigated clay and well burnt. The interior surface of the dishes is invariably black and majority of them were used as table ware. But there are some with a white painted spiral design at the bottom inside. In the intervening space between the spirals there are white painted dots of various sizes. The dishes with spirals is a characteristic of most of the early historic sites in the Karimnagar and other regions. The spiral design is traced from the protohistoric period, not only in India but elsewhere also.²³⁷ We also find the design in the painted greyware at Hastinapur²³⁸ and on the cream-slipped Malwa ware at Navdatoli²³⁹ and on the early historical wares at Salihundam²⁴⁰ etc. In the protohistoric paintings at Kokapet we find a similar design painted in red ochre over a rocky boulder. We find several volutes or spirals in the Buddhist sculptures. Many ornaments such as ear finger or toe rings from chalcolithic period onwards are in the shape of spirals. Among the finger rings found at Bhulikatta majority of them are spirals. It is not clear whether the spiral design has got an religious significance, but certainly the form has evolved from the conch or sankha venerated as a sacred object from a very early period. In a semi-circular lime stone slab from Kesanapalli²⁴¹ there is a relief carving of nandipada ^{ent.} cut-wined by creepers, lotus

medallions, fish and spirals (disco with incised concentric lines). As the spirals are found along with other symbols, viz. the fish, lotus etc., they may also represent one of the products of water, may be the conch shells. The cowrie shells formed a part of ^{the} wealth during the early periods.

The dish with the spiral design may have been used for purposes of religious offerings. Salihundam excavations recorded a considerable number of dishes inscribed with the names of the donors in brahmi. One of the dishes from Peddabankur was inscribed in brahmi as Hema.²⁴¹ The offerings of flowers of such kind may pertain to one devotee by name Hema.

CENSER: c) ^{Also} A pedestalled cup decorated with bands of vertical and oblique lines and tridents, might have been used as a censer or offering stand as suggested by Marshall regarding those stands found at Taxila.²⁴²

Some of the pots have cord impressions in the shape of the brahmi letter "Ma". This design is probably derived or itself a part of the endless loop-design noticed in the protohistoric levels elsewhere. Similar "MA" design over the pottery from Nasik²⁴³ is found between two swastikas. Sankalia suggested that palaeographically the 'Ma' letter (if it is really Ma) may belong to the pre-christian period. But its occurrence between two swastika symbols may suggest that it is also an auspicious symbol either an abbreviated form of the endless loop noticed at Mohenjodaro, Harappa,

Taxila etc. or the replica of taurin symbol found on punch-marked silver coins, and sometimes over pottery as at Ahichchhatra.²⁴⁴

Several pots were stamped with the nandipada²⁴⁵ or trident. Many variations are noticed in this design. In the first type the tips of side prongs are split into branches, each having a tip. The central prong is of equal height with the side prongs. In the second type, the side prongs are like arrow-heads but the central prong along with the lower spikes appears like a barbed arrow-head standing on a stepped base. In the third type, each side prong looks like a trident by itself and the central prong is topped by a radiating circle.

DECORATED POTTERY: pl 21. a, b, c

Many pot sherds were decorated with various designs such as chevrons, inside marginal bands²⁴⁶ of vertical notches, oblique notches above horizontal bands; circles enclosing endless triangles; creepers emanating from the circles; lotus enclosed in serrated circle; tree symbols below concentric circles; six petalled lotuses, 12 petalled lotuses, criss-cross lines between marginal bands²⁴⁷ enclosed by notches on one side and oblique lines on the other.

GRAFFITI:

Quite a good number of graffiti marks are found over the pottery from the early historical levels. These marks include arrow, inclining triangles, plough, brahmi 'Ma, fish, circle

enclosing a cross, bow and arrow, a vertical line bisecting an arrow, 3 vertical lines intersected by a horizontal line, inverted trident, two parallel lines bisected by another set of parallel lines etc.

COINS:

During the early historical period, coinage became universal. Even the mahasenadhipatis and maharathis and sometimes mahatavaras were issuing coins in their names besides the coins of imperial dynasties. In all the countries the common measures have been derived from the natural objects such as the measures of length from fingers, palms, feet etc. Weight from seeds such as "masha" etc. The Indian panga may probably mean a handful or anjali i.e., a handful of cowry shells usually reckoned as eighty. The panga was also a copper coin equivalent to 80 rathis in weight and 80 cowries in value. Four pangas make one tanka, a word probably derived from the sound of the coin when hit against a stone.

THE EARLIEST COINAGE:

As early as the Rigveda²⁴⁸ we find mention of nishkas as a sort of currency. Satapata Brahmana mentions nishka as a gold coin. Mahabarata²⁴⁹ refers to two classes of wealthy people or wealth consisting of one hundred and one thousand nishkas. There is another denomination 'suvarna' but it is not possible to indicate their relative weights. In Satapatha Brahmana²⁵⁰ the nishkas offered by Uddalaka Aruni to his learned rival 'Svaidyana' was of gold. Kautilya²⁵² mentions a coin by name 'kara' which is equivalent to 10 pangas.

The silver coin was known as 'satamana'. In Satapatha Brahmana²⁵² it is stated that satamana was also a gold coin. In the Vedic literature the manu was a measure equivalent to 'krishnala' or 'raktika'.²⁵³ According to Manu, the silver satamana is equivalent to ten dharanas or 320 rathis in weight, which is equivalent to 560 grains. But the silver punch marked coin was usually known as the 'karshapana' or 'pana'. The phoenician unit,²⁵⁴ a small coin of 56 grains or 1/4 of Hebrew shekal may have definite connection with the old Indian karshapana which is also 56 or 57 grains. The copper coins was known as pana or karshapana. According to Manu one karsha is equivalent to 80 raktikas in wieght. Pana, as already noted, is equal to a handful of cowries numbering 80.

Coins from Karimnagar Region:

Previously about 418 punch marked silver coins were discovered from an unknown place in the Karimnagar region and now exhibited in the State Museum, Hyderabad. Later in 1952 a hoard of 8 coins came from Nustulepur about 15 km. from Karimnagar. The Nustulapur hoard²⁵⁵ is of great importance because of its association with 3 Roman coins belonging to Pontiff Augustus Caius Julius Octavius (27 B.C. to 14 A.D.) and Tiberius Claudius Nero (14 to 37 A.D.). Peddabankur excavation yielded two hoards of silver punch marked coins, one consisting of 168 and the other of 30.

Srinivas²⁵⁶ classified the previous hoard from Karimnagar on the basis of the fabric of the coins into 5 categories.

Class A consisted of rectangular small, thick and clipped coins. Class B slightly larger and clipped, Class C, small thick but not clipped. Class D, slightly larger and unclipped. Class E, circular. Subsequently Gupta²⁵⁷ studied the coins and classified them into 4 periods. Period one are of thin and broad fabric equated with the big Bhair Mound hoard. Coins of Period II are of thin or medium fabric and are square dumpy or circular types. These coins were dated to the pre-Mauryan period. Period III are of dumpy fabric square and globular. Regarding the date he suggested that this group is earlier of the series. Period IV are of dumpy fabric for which no date has been specifically mentioned.

The coins of two Peddabankur hoards can be broadly divided into rectangular and round. Among the rectangular types there are two variations, clipped and unclipped. Likewise among the ^{Coin} round type there are two types, the rounded and ovoid. The rounded are dumpy whereas the ovoid are thin. The weights of the most of the coins range between 3.32 to 2.4 grams (51 to 38.12 grains). Most of the coins have uniformly five symbols, varying from coin to coin but the solar symbol with sixteen rays around a circle with conspicuous dot in the centre is invariably seen in all the coins. Only the other four symbols vary.

DIE CAST COINS:

Next to the punch marked silver coins come the earliest copper coins which are as early as 5th century B.C. They were

cast by pouring the molten metal into a cavity formed by joining two moulds together. This must have been a very ancient practice in India. These coins are for the most part anonymous. We find cast coins issued at the close of the 3rd century by the kingdoms of Kausambi, Ayodhya and Mathura, some of which bear the names of the local kings in the brahmi²⁵⁸ script. A hoard of 1600 lead coins, similarly moulded, were recently found at a Buddhist site at Nandalur²⁵⁹ in Cuddapah district. These coins bear on the obverse a horse to right and a tree in railing and a wavy line below. Some coins bear some illegible legends.

The earliest die struck coins with device on one side of the coin are assigned to the end of 4th century B.C. Some of them having a lion device appear to have been issued at Taxila. Other coins bearing various Buddhist symbols such as Bodhi tree, swastika may belong to the time of Asoka. In the die struck coins of Eran we have an illustration, as Rapson says, of the development of the punch marked system into die system. These coins are of rectangular copper pieces and the device on each, consists of a collection of symbols like those appearing in punch marked coins such as the elephant, the lion, ujjain symbol and tree etc.

Before discussing the coins of the Satavahanas, it is necessary to have a knowledge of some minor dynasties or feudal chiefs under some unknown imperial dynasties. The coins

of Sivalakura were catalogued by Smith²⁶⁰ as Andhra coins. There are two types known so far. They are the coins of "Rājño Mathari putasa Sivalakurasa". Along with this legend, a bow and an arrow pointing upwards on the obverse and chaitya with four tiers surmounted by a crescent, with a tree in railing on the reverse. The second coin bears the legend "Rājño Gautami putasa Villivaya Kurasa". On the reverse instead of a crescent over the arched hill, there is a swastika. Both these coins come from Kolhapur.²⁶¹

During the excavations at Brahmapuri uninscribed coins were found in the lower most layer of square I. In the same square from the layer 9, a coin bearing the legend conjecturally restored as "Mulanandasa" with a tree in railing and a wavy line below on the reverse and on the obverse the above legend and a six arched hill. Gupta has ascribed these coins to 'Kura' rulers on the basis of the form of the hill.²⁶²

Thirteen more coins bearing the legend Maharathisa Kurasa and one coin bearing Maharatisa (Viliya) YAKURASA were found in layers 8, 9 and 10. These coins have a bow with an arrow and a legend. Evidently these coins were issued by 'Kura' and 'Villivaya Kura'.

Seven Satavahana copper coins of YANA SATAKANISA etc. were found in layers in 3 to 6 and thereby suggesting that the Kura kings were supplanted by the Satavahana rulers in this area.

In the Chandravalli²⁶³ excavation the coins of SADAKANA KALALAYA MAHARATHI come from a strata 7 to 8 below the stratum in which the coins of Satavahanas were found. Ramrao²⁶⁴ has ascribed the coins of Maharathi Sadakana Kalalaya to the reign of Satakarni I as the letters 'HA' and 'MA' resemble those on the coins of Maharathi SADAKANAKALALAYA.

Mirashi²⁶⁵ published number of coins from Kondapur of one "Mahisha" dynasty. Some of these coins have legends reading as 'SENA PATI PUTA', RADAJI PUTASA' 'SAGAMANA'. The other coin "SAGA MANA CHUTA KULASA MAHASENA PATASA RADAJA PATA".

But a similar coin with a big syastika in the middle and legend of 'Mahasena' on the obverse and an arrow and thunderbolt in a dotted square on the reverse is noticed at Peddabankur from an early level than the Satavahanas. Mirashi ascribed this coin to the post Satavahana age. He admitted that the characters on the coin are Kushana type and the swastika, an ancient symbol, noticed only on the earliest Satavahana coins.

It is now evident from the above discussion that the coins belonging to MAHARATIS and MAHESENAPATIS certainly are earlier than the Satavahana coins.

Recently, a few coins collected from surface came to the notice of Parabrahma Sastry²⁶⁶. He identified 6 of these coins as pertaining to Simuka or Chimuka, the founder of the Satavahana dynasty. The coins have on the obverse an elephant to left with trunk hanging down and traces of Ujjain symbol and the legend as "SIRI CHIMUKA SATA", and on the reverse a Ujjain

symbol with a double circle and a crescent on one orb. Parabrahma Sastry identified CHIMUKA of these coins with SIMUKA of the Naneghat label inscription and the founder of the Puranic list of the Satavahana dynasty. Palaeographically, Sastry ascribed these coins to the last part of the first century B.C.

There is a large collection of Satavahana coins from the Karimnagar region which include the coins of Satakarni I, Gautamiputra Satakarni, Vasistiputra Pulamavi, Siva Siri Pulamavi, Yajna Satakarni and Rudra Satakarni.

Smith²⁶⁷ noticed that the coins of the dynasty are northern rather than southern in type and in fact have nothing in common with the peculiar coinage of the South. But it may be pointed out that the peculiar coinage of the South is evidently of a later date than the times of Satavahanas. However some of the prominent devices and symbols which occur on Satavahana coins are seen on most of the primitive issues of North India especially of Malwa with which region the early Satavahana kings appear to have been politically connected²⁶⁸. The chief characteristic of the Satavahana coinage is the use of metals like potin and lead, the former being more predominant.

The rare silver issues of Satavahanas betray unmistakable influence of the silver coins of Saka-Satrapa of Western India with whom they had often come into conflict. About a dozen silver portrait coins of Satavahana kings came to light. These

coins belong to Vasistiputra Satakarni²⁶⁹, Gautamiputra Sri Yajna Satakarni²⁷⁰, Vasistiputra Pulavavi²⁷¹. So far there are only four coins of Vasistiputra Satakarni bearing the legend "RAHO VASITHI PUTASA SIRI SATA KANISA" on the obverse and on the reverse "ARAHANAKU VA HITI MAKANAKU TIRU CATA KANIKU". There are seven coins of Gautamiputra Yajna Satakarni. These read as "ARAHANAKU VAHITTI - MAKANAKU TIRU HATAKANAKU ARAHANAKU GOTAMI PUTAKU HIMU YANA CATAKANAKU".

On the coins of Vasistiputra Pulamavi, we find on the reverse as "ARAHANAKU VASITI PUTAKU TIRU PULAMAVIKU".

Interestingly, a single silver portrait coin came from Dhulikatta excavation pertaining to Vasistiputra Siva Siri Pulamavi. The coin on the obverse has the youthful head of the king with an aquiline nose, protuberant chin and a dome like headdress. The inscription in brahmi is in the clock-wise direction probably starting at 2'0 Clock. The beginning letter 'VA' is broken. The other letters read as 'SITHI PUTASA', then a break for the neck of the king, again the inscription starts at 7'0 Clock as "SIVA SIRI PULAMV."

Two perforations were made for the coin for suspension around the neck.

ROMAN COINS:

Large number of Roman coins of the imperial period travelled to India, brought by the traders during the 1st few centuries of the Christian era. These coins have been discovered in many parts of the country. The movement of the coinage from Rome to India took place in two forms. Merchants carrying on large transactions with foreign countries, found gold coins a necessity for possession as wealth and for external commerce, while silver was essential for small change,. Much of the Roman currency found in India was brought by Roman subjects to India in order to buy whatever goods they were unable to get by exchange of Roman products.²⁷² Pliny²⁷³ says that at the lowest reckoning India, Seras and Arabia drained from the Roman empire, a hundred million sesterces.

About 47 silver coins consisting of 39 Roman dinarii and 8 punch marked coins were found at a village, Nusthulapur²⁷⁴, about 15 km. from Karimnagar. Of the 39 Roman coins, 12 are of AUGUSTUS and the remaining 26 belongs to TIBERIUS.

Peddabankur excavation also yielded 5 Roman coins and four coins of imitations made of lead plated with gold. These imitations have double perforations to be suspended around the neck. Among the 5 coins, 3 coins bear the devices as follows:-

Obverse: Laureate head of Augustus;

CEASAR AVGVSTVS DIVI F PATER PATRI

Reverse: Caius and Lucius, standing and facing each other on either side of two shields.

Behind are two spears crossed. The inscription reads as:

"AVGVSTI COSDESGIC PRINCIP AVVENT"

The other two coins belong to TIBERIUS

Obverse: - Laureate head of Tiberius

TICAESAR DIVI AVG F AVGVSTVS

Reverse: Livia seated right, "PONTIF MAXIM"

All the Roman coins including the imitations were found in layer 2 associated with Satavahana coins of Satakarni, Gautami putra etc. The Roman coins belong to Augustus (29 B.C. to 14 A.D.) and Tiberius (14 to 37 A.D.). No coin of the post Tiberius period was found which may suggest that the contacts between Rome and this region must have ended by that time.

STONE OBJECTS:

The stone objects mainly consisted of querns, pestles, nullers, dabbers and a small cup made on lathe with featureless rim. Most of the querns are legged and of varying sizes. A big quern which is intact measured 40 cm. long and 20 cm. broad. It has a rectangular grinding face with undulations in the middle resulted constant due to grinding. Its surface was much abraded, due to soft nature of the stone which is red sand stone. Fortunately a pestle 20 cm. long and with a

diameter of 8 cm. was found near the quern. The other querns, smaller in sizes, are of granite. In some cases yellow quartzite or dolerite were also made use of. A single completely ground stone with a knob in the middle may possibly be the lower piece of a rotary quern.

PESTLES OR MULLERS:

The above noted red sand stone pestle is exactly cylindrical in shape. It is commonly noticed that both the ends of the pestle were grooved and rounded to facilitate easy grip. There is another type which is cylindrical in the middle and both ends were made bulbous.

DABBERS:

There are two dabbers of similar shape with concave sides and rounded ends, the working end bigger than the butt end.

WEIGHTS AND MEASURES:

In Satapatha Brahmana²⁷⁵ the word 'prasrita' has the meaning of handful. It literally means stretched-out or expanded. Similarly the term 'anjali' is also a measure which is two handfuls. It is still known as 'dosilli' in Telugu. The pana, a handful was derived from pani the hand. The Indian pana was a handful of cowrie shells reckoned as 80 raktika seeds in weight (144 grains)²⁷⁶.

THE BALANCE:

The weights (pratimana) were usually made of iron or locally available stone or of such material which will not

contract when wetted nor expand when heated. A balance is called samavritta when its lever is 72 angulas long and weighs 53 palas. The balance is sometimes graduated.²⁷⁷ The scale pans according to Varahaomihira²⁷⁸, should be 6 angulas in diameter and were fashioned from linen cloth. Each of them connected to the balancing rod by means of four strings.

The excavation yielded two recognisable weights one is cubical, made of black basalt and other is a perfect sphere of black granite. The basaltic weight measured 120 grains and is hexagonal. The base is flat and the top is convex. The second weight which is a sphere appears to be made on a lathe and weighed 70 grams. Interestingly, it was stamped with the Ujjain symbol, four circles connected by a cross. Evidently, it was issued under royal authority. It may prove that weights and measures were standarized. Kautilya²⁷⁹ specifically stated that the weights and measures should be manufactured under the royal authority (superintendent). Common people must have used riverine shingle as weights, a large number of which have been found in the excavations.

MEASURES:

The sarava²⁸⁰ or earthen pot was used as a measure of grain. Kautilya²⁸¹ mentions that two hundred palas of grain (masha) make one drona, 16 dronas make one vari or 20 dronas make one kumbha and 10 kumbhas make one yaha.

GLOBULAR MEASURES:

Interestingly the excavation at Dhulikatta yielded a large number of sarayas or kumbhas, half-kumbhas and quarter kumbhas. They were found from inside a brick granary inside the palace complex. The sarava with a narrow mouth and everted rim has globular body. The half sarava has a bevelled rim. The red slip of the vessels is much abraded and now visible in patches.

STRAIGHT SIDED MEASURES:

The straight sided vessels slightly tapering at the mouth with featureless rim and rounded base from Peddabankur excavation may also have served as a cubic measures (parimana). One pot has three incised grooves, at the top, 2 cm. below the rim, in the middle, 8 cm. below and the third at the base about 17.5 cm. below. The mouth has a diameter of 12 cm. and the total height is 24 cm. Similarly cylindrical vessels made of sheet iron are commonly known as addas or manikas. Forty such addas make one gani or sackful. Half of one adda is thavva and half of thavva is sola, half of sola is gidda.

STANDARD MEASURE:

Many pots from Peddabankur and Dhulikatta were stamped with nandipada or trident. If the symbol is only of ritualistic purport, it would not occur, so commonly. It is likely that the nandipada was another royal standard mark. The symbol may represent the Mother Goddess and in this context Dhanya Lakshmi, the stamp of the same over the measures is quite appropriate.

URBANIZATION:

There are clear evidences of urbanization during the early historical period. Like the India of the present day the region during the period under discussion was marked by both urban and rural areas. Politically and commercially important towns such as Dhulikatta, Kotilingala, Vadloor and Budigapalli etc., were surrounded by mud fortifications with gate-ways at the cardinal directions. Kautilya²⁸² states that on all the four quarters of the boundaries of the kingdom defensive fortifications against an enemy in war should be constructed. The fortifications were of four kinds - a water fortification (sudaka jaladurga) such as island in the midst of a river, a mountainous fortification (paryntha durga), a desert (chavana durga) such as a wild tract devoid of water and overgrown with thicket, or a forest fortification (yanadurga) full of wagtail, water and thickets. Many of the fortifications in the Karimnagar

region were found on the plains and it is beyond our knowledge whether some of these forts to be designated as yanadurgas were surrounded by forests as most of which is denuded.

However, we have evidence of Jaladurga at Kotilingala where the mud fort is situated at the confluence of the Kapparaopetavagu and the river Godavari. The 50 hectares extensive historical site is encompassed by a mud fortification with gate-ways at the cardinal directions.

The mud ramparts were raised with the earth dug out from outside the settlements and the trenches thus excavated simultaneously serving as moats. It appears that these moats were full of lotus flowers as found in the sculptural representation at Sanchi.²³³ According to Pliny,²³⁴ the cities were defended by marshes which served as ditches where in crocodiles are kept. They are known to have a great avidity for human flesh and prevent all access to the city except by a bridge. At Dhulikatta there are traces of a moat around the ramparts. Unlike at Kotilingala, the Dhulikatta fortification was raised in the midst of arable plains and provided with four gate-houses and the guard rooms. The gate-house has sufficient space in the middle for a pathway and provided with casemates or ambush niches²³⁵, on either side. The gate-way must have had one or many storeys with a terraced roof, railings and pillars. The middle path-way was paved with rubble and veneered with a thick layer of sand and merrum.

Wheeler's excavation at Brahmagiri²⁸⁶ also brought out a 5.30 mt. broad street at the Isila town site. It is paved with rubble and the boundaries are marked by flat slabs. Similar may be the case of the important roads inside the towns of the Karimnagar region. However it appears, that the national highways were not paved.

WATER WAYS:

As many of the settlements have grown up on the banks of the major and minor rivers, people may have covered distances by boats, as the journey was safer than travelling by roadways. The un-paved roads would not be useful during the rainy seasons. Further, the larger quantity of internal trade and commerce used to be carried through the rivers due to lack of all-seasonal roads. Even the existing ones passed through thick jungles infested by wild animals and highway robbers. The goods had to be transported by carts drawn by oxen or buffalo. Horses were very few and practically monopolised by the kings to be used in times of war. An inscribed terracotta seal from Peddabankur reads as "Mahatalavarasa vajasamikasa Seva Sabha". In the middle of the inscribed seal is the figure of a horse.

Elephants were also used for movement of cargo but it was a slow process. The Karimnagar region has a net work of perennial and navigable rivers. The rivers were crossed with boats. They were made of wattle and covered with animal skin for making it water-tight. These were known as bhastra.²⁸⁷

Even horses were transported from bank to bank through these puttis during times of war. In Periplus²⁸⁸ it was mentioned that the bigger vessels, known as sankara were made of single logs bound together, but those which made the voyage to Chrys and to Ganges were called Colandia which were very large.

ROAD WAYS:

The planning of roads and their construction formed an important part of town planning. According to Aitereya Brahmana the royal thoroughfare was known as rajapatha and the national highway as gahapatha. The gahapathas were connected by numerous feeder roads leading to different parts of the country. The rajapatha was well constructed and comparatively free from dangers than mahapatha. The rajapathas and roads of important towns were paved with rubble. Artha Sastra mentions chariot roads, royal roads, and roads leading to minor fort, to country parts and pasture grounds etc. But it appears that the condition of the national highways was bad. In the Periplus²⁸⁹ it is mentioned that the cargo is brought down to Barygaza from these places by wagons and through great tracts without roads".

The Karinnagar region was traversed by highways from the North to the South and the East to the West. The caravans travelled from Vidarbha region to Andhra, from there to Dhankataka, towards south-east and to Govardhana country(Nasik region) towards west. The northern route from Akara Avanthi(Ujjain),

after crossing Narmada and proceeding to the ancient town of Bahal (district East Khandesh) from where the caravan either went south to Prathisthanapura (and the Karimnagar region) or to west to Nasik²⁹⁰. When Hiuen Tsang²⁹¹ travelled from Kalinga to Kosala which is about 1800 Li, the country was surrounded by mountains and a succession of woods and marshes. The route through the Karimnagar region to Paithan was filled heavily with jungle infested with savage beasts of prey. The ox-carts would be used near each end of the journey. Much of the goods must have been carried by caravan of pack animals. Lourte Barbosa²⁹² (1500 A.D.) reports that "They bring their goods laden on great droves of trained oxen with pack saddles, like those of castille, and over these long sacks thrown across, in which they pack their goods, and behind them goes a drover who drives twenty or thirty oxen before him".

DRAINAGE:

The sewage from the houses and wells was lead out through covered subterranean drainage. This was evidenced by a drain of bricks placed in three courses with an intervening space of 12 cm. for the drain. The floor of the drain was also paved with brick. Much care was bestowed to see that no breakage occurs. It was provided with a series of side-vents at regular intervals to the drain on both lateral sides for letting out water to percolate into the earth, so that the drain till the end need not carry the entire sewage. At

the end of the drain a huge 'V' shaped pit excavated to let the drain water fall into it. In another case a terracotta soak well was provided to let out waste water from a brick well. Each ring of the soak pit measured 76 cm. in diameter and 38 cm. in height. But it appears none of the wells have washing platforms around. The sewage was allowed to percolate or led out to a pit in the vicinity but care was taken that the percolated water did not enter again into the well by stonning the wells with brick and the gap between the brick lining and the trench wall dugout for the construction of the well was packed with morrum and hard earth. At Dhulikatta it was noticed that a drainage was lined with a series of terracotta pipes by inserting one into the other. In other case a well inside the palace complex had a long covered drain which was led out to a soakage pit.

WATER SUPPLY:

The fundamental necessity for a town or a village was good natural supply of water. Most of the towns and villages were situated on the banks of the rivers or nullahs with a plentiful supply of water all throughout the year. The Kotilingala mud fort situated on the banks of the river Godavari likewise the township of Dhulikatta is on the right bank of Hussainivagu and Peddabankur is situated about 10 km. down stream on the same nullah. The nullah used to dry up during summer which necessitated construction of several brick wells at Dhulikatta as well as Peddabankur. Peddabankur excavation

exposed as many as 32 wells, most of them steened with wedge-shaped bricks. There is only one well steened with terracotta rings. Even these wells dried up in course of years and later used as refuse pits into which garbage such as animal bones, broken potsherds, charcoal and ash etc., was thrown. In one of the wells at Peddabankur a complete skeleton of a horse was found. Many other wells contained a large collection of animal bones.

STORAGE:

Water was mainly stored in huge earthern ware jars and brick cisterns. Some of the cisterns at Peddabankur were paved with bricks over the floor but some had a flooring of hardened morrum by gramming.

INDUSTRIES:

Unlike the present day, industries were not monopolised during the early historical period. There are no evidence of either big industries or big business. The settlements were concentrated at the places where raw-material was abundantly available, but industries were of a cottage type. They were scattered from village to village and every village or town was self-sufficient. Iron ore was collected and brought to the towns or villages where it was smelted and forged. The smelting furnaces consisted of simple terracotta or brick kilns. Even in some cases it consisted of a heap of cow-dung covered with green leaves and cactus etc. The crucible in which steel was

manufactured is not bigger than 10 cm. in diameter. The occurrence of large quantities of iron slag invariably at almost all the settlements is a proof that iron smelting was practiced as a home industry. Iron ore was found at Warangal, Konasamudram in Nizamabad district, Dindurthi, Jagtial etc. About 5 km. from Dhulikatta the entire hill range from Tellakunta to Dongathurthi is full of iron ore. Ancient iron-working spots were noticed over a series of hills near Tellakunta. The iron ores were collected from these places and turned into fine steel known as 'wootz' at the famous steel producing centres like Konasamudram, etc. which attracted traders not only from different parts of India but also from abroad. Fine swords made of Indian steel have been famous since the time of Ctesiss and the Roman trade of the Indian iron and steel was a very important one. It appears the Indians sent their steel in their own ships probably to keep the secret of production.²⁹³

Next to iron, copper was an important metal required for coinage and ornaments etc. In fact, most of early coinage was in copper. The Periplus says that copper was exported from Barygaza to Omara and to the Persian Gulf. Pliny too mentions that copper, iron and red-lead were shipped from India to the Persian gulf and to the ports of Red Sea for marketing. Cosmos attested that copper was found at Kalyana in his day and even Ptolemy speaks of numerous copper mines in India. However, the

evidence of either smelting or forging of the metal is not clear. The entire coinage and many of the ornaments were made of copper.

It is certain that lead was a rare metal. Together with copper it was imported through the western marts of India from the Roman Empire. It appears that lead was imported in the form of strips as attested by a large number of coiled strips at Peddabankur. Lead was also used for making thin foils for the manufacture of mirrors. There are also some ornaments such as bangles, beads besides coins.

GEM INDUSTRY:

Indians have from a very early period an excellent knowledge of gems. According to Arthasastra²⁹⁴ experts were stationed at the royal treasuries for admission of gems to the royal household. The practice of collecting gems was common during the early historical period. The gem cabinet was an essential part of every rich home, but the poor used glass imitations. The gems were used in several ways such as stones for finger rings, necklaces, diadems, bracelets etc. The gems included the diamond, opal or agate, carnelian, sard, onyx, emeralds, blood stone, jasper, cat's eye, amethyst, rock-crystal, sapphire, beryl, lapislazuli garnet etc. It appears that the rivers and their basins formed the chief source of the gems. The Indian rivers were popularly known as gem-bearing.

COMMERCE:

Commerce occupied an important place in the life of the people. We find several classes of workers prominently figuring in the contemporary records, such as kularikas (potters), Udayanrikas (hydraulic engineers), Tilapiakas (oil millers), Dhannikas (Corn-dealers), Kolikas (Weavers) Vasakaras (bamboo workers), Kasakarasa (braziers) etc.

Each of these artisans had a guild or sreni of their own. The srenis were corporate bodies wielding great influence in the state. Sreni-dharma had the force of law. The special feature of these associations was the banking facilities provided by them. An epigraph of Usavadata²⁹⁵ speaks of the craftsman who were organised in powerful guilds "as those kahapanas have been invested in guilds dwelling at Govadhan (as follows) 2000 at a (monthly) rate of padika per hundred with a guild of weavers (kolikanikas) and one thousand in another guild of weavers at the interest of 3/4 padika per hundred (9 per cent). And those kahapanas are not to be repaid, their interest only to be enjoyed".

The kahapana of the time was of good silver as proved by some of the silver coinage issued by the Satavahana kings. Most of the crafts and trades were organised into guilds. We hear of a Dhannika Seni²⁹⁶ a Kasakaraseni²⁹⁷ (Kamsayakara seni) and a Tesakaraseni in Junnar inscription. Each guild had an older man called sathin (sresthin). There were nigamasabha²⁹⁸ or town halls for congregation and business by the guilds.

MARKET TOWNS AND PORTS:

The market towns in the interior were Paithan, Nagara, Junnar, Karphakata, Nasika, Govardhana and Vejayanti. According to Periplus²⁹⁹, Sarygaza or Bharukacha (modern Broach) was the northern most port in the Dakshinapatha. The imports and exports were graphically described by the author of the Periplus. They are the Italian, Laodecian and Arabian wine, copper, tin, lead, coral, topaz, fine and rough cloth, storax, sweet clover, flint, glass, realgar, antimony, gold and silver coins. The exports were spikenard, costus Bedellium, ivory, agate, carnelian, lycium, silk cloth, mallow cloth, long pepper etc.

The Satavahana port town of Sopara or Soparaka is a few miles to the north of Bombay but the greatest port in western Deccan was Kalyan which is the 'Calliene' of the Periplus. In the eastern Deccan the important market town was Danakataka, and the port towns were Kantakossyla³⁰⁰, Kodura and Allesygne in the Maisoliya region which according to the Periplus³⁰¹ stretched a great way along the coast before the island country.

DRESS AND ORNAMENTS:

(a) Dressi- It is said that the dress and ornaments are to be used in accordance with time, region and progression. Dress and ornaments are incorporated in the catalogue of 64 subsidiary arts (anga vidyas) in Vatsyayana's Kama Sutra.³⁰² Costumes made of various kinds of fabrics must have been used such as

Karpasika, (cotton cloth), aurnika (cloth made from wool), kutupa (cloth made from goats wool) etc. We have evidence of dress of the period under discussion from various sculptural representation terracottas etc. Whether it is male or female, no upper garment was shown in most of the artistic representations. Uttariya or upper garment was a kind of scarf thrown around the shoulders. It was worn by men especially while observing a religious duty. The lower garment or the antariya corresponding to the dhoti was held in position by a kamara-bandha. In some cases a waist band was used for the purpose. The upper and the lower garments were known as satakas.

Many of the representations of the Yakshas and Yakshis from Dhulikattha consisted one wearing a pair of satakas, arranged gracefully in a variety of ways. Curtius Rufus³⁰³ stated that the Indians cover their persons down to their feet with fine muslin, are shod with sandals and coil round their heads cloths of linen. Arrian³⁰⁴ also recorded, as told by Nearchus, that the dress worn by the Indians is made of cotton. They wear an undergarment of cotton which reaches below the knee half way down to the ankles, and also an upper garment which they throw partly over their shoulders and partly twist in folds round their head.

(b) Ornamental-

It is really puzzling that the males and females represented in art, either in painting, stone sculpture, or terracottas are dressed scantily. This is so especially in the case of the

females. Any foreign visitor who is unaware of the subtleties of Indian art would naturally comment that the Indian women of the bygone days never knew an upper garment. But the ornamentation is so profuse as to cover up the lacunae in dress. We have a variety of ornaments worn from head to foot. Our main source for the study of ornaments of the early historical period are the antiquities excavated and ornaments represented in the sculptures of stone and terracotta:

Mastaka Sphagna

The head ornaments (mastaka sphagna) consist of the ornaments of jewels of the forehead, at the parting of the hair and as a decorative piece over the hair knot. We do not have any of the above ornaments from the excavation, but in the terracotta figurines from Peddabankur we find a lalatika or crest jewel and a fillet across the forehead. The hair is made into a top knot.

Makarika:-

The Mother Goddess made of terracotta has a fan-shaped hair dress and made into a makarika (mythical-crocodile) top-knot. The makarika is very common in the terracottas found at Yeleswaram and Nagarjunakonda.

Chandrakarnika:- pl 22 d top row

There is a large number of ear ornaments made of terracotta, glass, rock-crystal, lead and copper. Mainly there are three varieties, one is crescentic or chandrakarnika. This variety is entirely made of terracotta. The ornament is thick

in the middle and the two rounded horns taper upwards to form a circle with a small gap at the top for introduction into the earlobe. It is decorated with multiple grooves on both the horns.

Chakrskundalas:- *Pl 22 d middle row*

The second type is a pulley with concave sides and a deep groove around the periphery. Some of these have transverse perforations. The pulleys made of rock-crystal have flat lateral sides (without perforation) and a groove around the periphery. One glass pulley has an encrustation of some powdery substance of multiple colours.

There are also good number of terracotta pulley-type ornaments with concentric grooves on the lateral sides and transverse perforation.

There are two types of ear ornaments in lead; one is a reel of spiralled strips, the other is a solid mass in the shape of pulley. Among the solid type, one is pulley shaped and other is reel shaped with bulbs at the lateral sides. Both have transverse perforations. The pulley is decorated with circular band around the perforation and at the periphery.

Similar is the case with copper ornaments one is a spiralled strip and the other is hallow. The spirals appear like incised concentric lines at the lateral sides. Both have transverse perforation.

Among the terracotta objects one is pulley shaped and the other is reel with bulbous studs at both the ends. The pulley is decorated with concentric lines on both the lateral sides. Some of the studs are black slipped and highly polished. Analogies of reels or pulleys with concentric circles are found at Hastinapur.³⁰⁵

PENDANTS:- Pl 24 c

The pendants are mostly made of terracotta and are simply conical masses with a transverse perforation at the tapering end.

NOSE ORNAMENT:-

There is a beautiful half moon-shaped terracotta pendant decorated along the margin with a beaded line between marginal bands on both sides. But a pendant needs no dorsal decoration. It may possibly be a nose ornament. The nose rings or toe rings are conspicuously absent in the literature or sculpture.³⁰⁶

NECKLACES:-

Kautilya³⁰⁷ mentions several varieties of pearl necklaces such as sirshaka, upasirshaka, prakandaka, svaghataka and taralapratibandha. When all the strings making up a necklace or of sirshaka pattern it is called a pure-necklace or siddhabhara, that which contains a gem in the centre is called ardhamanavaka, that which contains slab like gems is triphalaka. When it has five slab like gems in the centre, it is known as panchaphalaka.

Out of the many hundreds of beads found at Peddabankur or Dhulikatta, there is not even a single pearl bead. Apparently

pearl being a very fragile and perishable material the absence of it can be understood. The other beads consisted of carnelian, both etched and plain, rock crystal, blood-stone beryl, lapis lazuli, amethyst, agate, jasper, glass and terracotta. There are also beads of shell, horn and mother of pearl. The most numerous of all are of terracotta.

Among the metal beads are included gold and silver. The gold beads are made of thin foils of the metal which included tabloid and octagonal shapes. The thin foil beads are sometimes decorated with radiating lines around the string hole and enclosed by dotted oblique bands. The periphery was stamped with gadroons. The beads are very thin and it is noticed that a cylindrical glass bead was introduced into the hallow space against the perforations so that the bead would not be squeezed together while threading.

Peddabankur excavation has yielded a complete necklace of 34 beads of which 24 are of amethyst, 7 of lapis lazuli 2 of gold and one of jasper.

BANGLES:- Pl 23.a

Bangles are worn in the Vedic age³⁰⁸ both on hands and feet by men and women. The materials used for bangles are five of varieties; viz; copper, lead, glass, shell and terracotta. Strangely no bangle made of either gold or silver was noticed. It can only be explained by the dearth

of the precious metals. The lead bangle-like object is decorated with peripheral serrations. It is only 4 cm. in diameter. There is a very large collection of shell bangles but not even one is found intact. Practically all the bangles are plain without any sort of decoration.

The terracotta bangles are broad and sometimes decorated with a beaded design between marginal bands. The glass bangles are very crude and mostly made of opaque blue glass.

RINGS:- Pls 23.6 and 24. a, b

The materials used for rings are copper, iron and shell. No gold or silver rings are noticed. Among the types are spiral and bezel-shaped. The spiral rings outnumber the bezel types. The rings with bezels are sometimes inscribed and designed. One ring is inscribed with brahmi letter "ARA LA SA". These four letters at the four cardinal points of the circular bezel. One ring has a double grooved incised design in the shape of an eye which is probably an amulet type. Double grooved eye designs are sometimes incised over the toes of Buddhanadas as noticed at Kesanapalli.³⁰⁹

WAISTLET:- pl 22. a bottom row

Girdles or mekala are worn by both men and women primarily to keep the lower garment in proper position and secondly as an ornament. The fashion of wearing the girdle is as old as the times of Mahabarata³¹⁰ in which it is described as "hiranyayi mekhala" (golden girdle). According to Natya Sastra³¹¹ rasana

means a girdle having 16 strands. Girdles are made of pearls, beads and strips of metallic plates. Their ends are clasped together at the navel.

In Bharhut sculptures, we notice girdles consisting of four³¹² to ten ten³¹³ strings.

In Nagarjunakonda³¹⁴ sculptures, there is an excellent example of the mekhala with circular clasps over the waists of two ladies in a sculpture depicting Makandhata Jataka. In the the ayaka slabs at Dhulikatta there are two female devotees on either side of Naga Muchilinda. These ladies have a beaded mekhala over a broad strip. The beads appear tabloid and lugged at both ends. Peddabankur excavation yielded a mekhala of silver hollow beads, tabloid in shape and lugged at both ends. There are twenty one such beads made of very thin silver plate each with a diameter of 2.3 cm. and 3.5 cm. long.

ANKLETS:-

The anklets or manjeera resembled in the earlier period, a coiled circlet. In the Ramayana (Sundara, 18.46) the anklets have been described as producing sound. For that effect small metallic rattles are usually attached to the anklet at the lower end. Such an anklet is known as as kinkini, manjeera or nupura. There are two types of anklets - one is spiralled and the other is a simple ring with or without clasp. A female votary found in the ayaka slabs of Dhulikatta represented with both the types, the spirals above and a massive

ring below. From Peddabankur we have a simple copper wire with a clasp.

FOOD HABITS:-

Agriculture, hunting and domestication of animals were the main basis of subsistence. Agriculture was attested to by the representation of plough on terracotta seals and the other objects found in the excavations such as, plough-shares, sickles etc. If self-preservation was the main pre-occupation during the proto-historic period, agriculture was the main criterian of the settlement pattern during the early historical period. While the towns were inhabited by the commercial classes, the villages were mainly occupied by agriculturists and artisans. As already stated, most of the settlements are found in the midst of black cotton arable plains. It appears irrigation was mostly depended upon tanks. The already existing tanks must have been renovated and many new tanks were constructed. There must have been both wet and dry cultivation. Wet lands in the low lying area must have yielded rice and the dry crops may be mainly ragi, jowar etc.

Hunting of wild animals and killing of domesticated species supplemented their food requirements. The domesticated animals included cattle, buffalo, sheep, goat, horse, dog, swine, etc. Rodents were also captured for food. The bones of the domesticated animals bear chopping marks caused by a sharp heavy object. Some times the cuts found on the bones are superficial which

were intended to dislodge or peel off the adhering flesh. The rough edges of the cuts indicate that they were made by a heavy sharp stone-like implements. The food habits of the Peddabankur³¹⁵ dwellers is amply demonstrated by a large collection of bones from the excavations. The osteological study revealed that the cattle flesh mainly formed part of their diet. Sometimes the bones appear to be charred.

The excavations revealed an entire skeleton of a cow. From the position in which the bones lying, it was inferred by Alur that all of them pertain to the same animal which may be about 2 to 2 1/2 years old. It is a definite case of a burial as indicated by an earthen pot noticed towards its head. No attempt has been made to deflesh the body.

The existence of a buffalo is rarely proved in other excavations, because, the bones of both the cow and Buffalo cannot be easily differentiated. The excavation at Peddabankur yielded an entire skull of a buffalo. The horns, which help in the easy identification of the animal are available. The study of animal bones from the early historic levels at Yeleswararam³¹⁶ reveals the presence of bison, sheep, goat, swine, fowl, rat, tortoise, fish and crocodile. As the historical site is situated on the banks of the river Krishna at which crocodiles were commonly seen, it is not known whether the flesh of the crocodile was also consumed along with that of the other species mentioned above.

RELIGION

The evidences regarding the Brahmanical religion are not quite explicit for reconstructing a comprehensive account of the religious conditions found during the early historical period. The religious beliefs still centred round local primitive forms of worship and rituals. The early inhabitants believed in village gods and goddesses, tree and serpent cults and probably practised worship of spirit. The common people had not yet fully imbibed the religion of puranas centering round the worship of Vishnu and his emanations or Siva in his Linga form. The main sources for investigation into religious conditions are metal or terracotta figurines.

The Mother Goddess represented by a bronze sculpture found in the early levels at Dhulikatta, is of the ankadhatri type. The Goddess is seated on a pedestal with legs dangling down and holds a baby in her left hand while the right hand rests on her knee. On stratigraphical grounds the figure may be dated to 2-3rd century B.C. The figure of mother and child usually represents the fertility cult. We find similar figures from Yeleswaram in the Ikshvaku levels. There is a figure of mother and child also from Yeleswaram with a conical cap-like headdress. She is flanked by a humped bull. Siva is sometimes known as 'Babhu'³¹⁷ or the bull and he is also the sustainer of food (annanam pathye). In the rock brusings at Mudumale we

find the early form of Srivatsa or nandipada flanked by a humped bull and a Mother Goddess with hands upraised. It is quite probable that the bull which ploughed the field to produce rice may be one of the earlier forms of the puranic Siva.

We have at Peddabankur two types of Mother Goddess - one with upraised hands and the other holding a bunch of fruit. A parrot is nudging her breasts. The third type comes from Dhulikatta where the Goddess holds her two prominent breasts with her hands from below.

In one of the terracotta sealings an incised a figure of plough was flanked by a solar disc and the Ujjain symbol. It is possible that the plough which makes furrows in the field was also worshiped like the bull which draws it. The furrow made by the plough sometimes is known as 'Sita' in Rigveda³¹⁸ which is later deified in the puranas.

There is also a terracotta sealing of Gajalakshmi datable to around 1st century B.C. ^(pl 18.6) The goddess is shown standing naked in a lotus pool and bathed by two elephants with pails in the trunks. The elephants are squatting over lotus leaves supported by long stalks. Goddess Lakshmi or Sri is probably the earliest among the Indian deities to be represented in clay. She appears on the Bharhut railing with the label "Sirima Devata"³¹⁹. She is represented in a variety of forms at Bharhut, Sanchi, Bodhgaya, Manmoda, Nandasur³²⁰ etc.

Peddabankur and Dhulikatta excavations have also recorded a good number of archaic terracottas of human and animal

figurines. The Mother Goddesses are hand-made with hands like pointed masses, protruded and pointed breasts. The attenuated waist line broadens towards the hip. The face is a featureless mass sometimes with a halo. Exactly similar figures are found at Dhulikatta, Nelakondapalli Yeleswaram etc. The figures sometimes come from far off places but appear to have been cast on the same mould. Coomaraswamy³²¹ wrote that "a nude and steatopygous type occurs throughout the most ancient world, from central Europe in the neolithic times to the Gangetic valley". Quoting Goltz he said "She is the great mother, it is She who makes all nature bring forth. All existing things are emanations from her. She is 'Madonna', carrying the holy child or watching over him. She is the mother of men and animals too. She even makes the plants grow by her universal fecundity - perpetuating the vegetative force of which she is the fountain-head".

The worship of serpent (Naga cult) is attested by a figure of a snake made of iron. The figure has two perforations at the head and one below to represent the two eyes and the mouth of the creature. The worship of Naga is as old as vedic times. In Atharvaveda³²² the serpents are addressed as powerful supernatural beings. One of the principle Nagas is known as Takshaka³²³ and Dhritarashtra' was a chief naga also called 'Airavata' who was the son of 'Iravan'.

The early Satavahana kings were followers of Vedic religion. The Naneghat³²⁴ inscription records a number of sacrifices by Gautamiputra Satakarni. His gifts of cows, elephants and money

as dakshina to the brahmins proves the great hold which the Vedic rituals had on their courts and encourage. The mention of various deities³²⁶ such as Dhamma, Ida(Indra), Sankarshana, Vasudeva, Chandra, the four Lokapalas, Yama, Varuna, Kubera and Vasava show that the Deccan was passing through a transitional stage from Vedic to puranic pantheon. It is interesting to note that the name of Rudra or Siva is conspicuously absent. The invocation to Dhamma in precedence to Ida, Sankarshana etc. is clear evidence of Buddhist leanings and the equation of the same with the Brahmonic faith. Saivism was still a sect taking shape. By the time of 'Gatha Sapthasati'³²⁶ Pasupathi, Gauri, Rudra and Parvathi, Lakshmi and Narayana have arrived on the scene and preceeded all others.

BUDDHISM:-

The stupas at Dhulikatta, Phanigir, Gajulabanda and Thirmalagiri may help us to reconstruct the history of Buddhism in the Karimnagar region from circa 4-3rd century B.C. Andhra Desa become a strong hold of Buddhism or probably that it embraced Buddhism long before the time of Asoka. For the same reason, it is possible that Andhra was not mentioned among the countries to which monks were sent by Tissa after the Third Council.³²⁷

The objects of worship of the Buddhists are the stupas situated at the above places. The stupa at Dhulikatta consisted of a solid drum of bricks capped by an anda raised with

alternating courses of bricks and morrum to maintain a hemispherical shape to the top. There is a rectangular brick-cell at the top, which must have served as harmika and in which is installed, in the recent years, an incised figure of Seshasayi. The local people have completely lost the memory of the

existence of a Buddhist stupa which, in course of time, became popular as the Ranganayaka temple. Some fragments of lime stone carvings littered around the place gave us an indication of the possible existence of the stupa and excavation later at the spot confirmed our conjecture. The chatra which must have crowned the harmika was noticed in the fragments. A relic casket of sandstone inscribed in brahmi characters over the rim was recovered, but due to the weathering nature of the stone, the inscribed label is quite illegible. Unfortunately the contents of the casket were already ransacked long before our excavation.

The stupa has seen two phases; in the earlier phase, the drum was a massive brick structure enclosed by a square platform which served both as a buttress and a pradakshinapatha. In the second phase, a second drum was raised around the original one with a gap of 1 1/2 m. filled in with brick bats and morrum. The second phase saw the enlargement of the drum and construction of the ayaka platforms and decoration of the surface of the drum with carved slabs of lime stone. The themes in the carvings over the slabs included reliefs of stupas,

Muchilindanaga, worship of Dharmachakra, Mahabiniśkramana etc. Sometimes the stupa is shown entwined by various nagas and below the stupa is the worship of Dharmachakra. The chakra has a prominent hub in the middle. It stands over a high pedestal and is flanked by the devotees, one of them holding his hands in anjali. At another place, the Dharmachakra is shown with 24 spokes radiating from a central hub to a broad tyre. The wheel is held in position at the base with a rounded top and flanked by two lions. The bottom portion of some pilasters have carvings of horses, the shaft with ardha-padma and padmas, the capital with lions seated in opposite directions.

One of the slabs carved with a brahmi inscription as "Gahapatino patalasa mathuya danam". In the other slab the inscription reads as "Gahapatino Pathalasa Methari Puthass Ayago Dapam".

Gahapati was sometimes mentioned as merchant. According to Senart³²⁸, the use of gahapati (Grahapati) in Nasik Cave No.6 "favours the opinion that gahapati is in the Buddhist language specially restricted to people of various castes who are included in the large class of Vaisayas". In the Satha Satakam we have references to the philandering of the gahapati with a girl of the halika sect.³²⁹ In the Amaravati inscriptions many a gahapati and merchant is mentioned; yet we have only one instance of the father of a yaniya bearing the title gahapati.³³⁰ Gahapati was sometimes known as the chief of yratvas and also

that of the yatyas in the Brahmanas. The outfit of the gahapati³³¹ is described as "a turban", a goad, a jyahnod, a xipatha covered with goads, a black garment, two skins, black and white, a silver nishka. Jyahnod may mean a bow, xipatha, a ratha driven by two animals, horses or mules. Nishka may be a gold or silver necklace of coins. Banerjee suggested that it is obvious that the gahapati with such an outfit was like a warrior chief, apart from his other duties, he had to participate in and supervise over ritual performances. In this manner he may be compared with the Brahmin purohita.

GAMES AND AMUSEMENTS:-

The people relaxed themselves from the drudgery of routine chores by indulging themselves in various sports and pastimes which included many indoor and outdoor games and other recreations.

(a) Game of dice:-

The game of dice was a very ancient pastime. From the earliest known prehistoric times, it is known as akshadyuta. As the dice are marked with circles and pellets in the shape of an eye, it is likely the game asuied the above name. It may be similar to the present day chaupara. It was participated by both women and men. The game board (dyyta phalaka) is represented in many sculptures of the early historical period, such as Bharhut, Bodhgaya, Nagarjunakonda etc.

From Peddabankur we have two varieties of dice, one is oblong prism and other is a square cubical.^(Playd Toprow) Majority of the dice are oblong. Each consist of four edges marked with circles with a middle dot. The dice are made of bone and horn.

The other favourite pastime was hunting which is mentioned as lubdhayoga by Panini.³³² It is also known as akhataka or mukaya. The weapons employed for hunting mainly consisted of bow and arrow. Sometimes hunting dogs (yisva-kadru) accompanied the party for frightening the animals. Lubdhayoga may possibly mean hunting as an occupation and mukaya is a sport. The various merits and demerits of hunting have been discussed by Kautilya³³³. The animals chased included deer, hare or boar,³³⁴ bison, fowl, tortoise³³⁵ etc. We find in the Bharhut sculptures,³³⁶ a boar being attacked with a short spear and two hounds have been set upon it. Hunting with long spears was common from the prothistoric period.

TAMING OF BIRDS:-

In the terracotta figurines, we find many figurines of birds such as sparrow, kokila (Indian cuckoo), cock, parrots, etc., were domesticated in the early periods to convey messages between lovers. In one of the figurines of Mother Goddess, made of kaolin, a parrot is on the right arm of the Goddess. In a panel of a railing pillar at Mathura, a woman is seen with a parrot. In the words of Agrawala³³⁷ "the pillar shows a female figure dancing in one of her love ecstasies, after

she has received the message of love conveyed to her by a parrot which is the vehicle of the God of Love". The bird is perched on her girdle and nibbles at the binding knot. Peacock was also possibly domesticated as represented in an amulet plaque from Dhulikatta.

ANIMAL FIGHTS:-

Animal fights were popular from a very ancient period. These included fights of ram, cock, etc. The figures of ram are of very common occurrence in terracotta. Vatsyayana³³⁸ mentions the quail-fight (partridge), cock-fight, and ram-fight, the talk of parrots and mainas and dramatic performances as pretexts to bring a client to the residence of a courtesan. It appears that buffalo³³⁹ and elephant fights were also common.

GAMES OF WOMEN:-

The games for women are mostly of indoor variety which included the game with the ball (kanduka krida). This game is very popular mainly intended for physical exercise.³⁴⁰ The girls who liked the game played it so much till they were completely exhausted and their palms became red and swollen.³⁴¹ It is not clear as to the material with which the balls were made of. It is possible that balls of wood or wool or flowers might have been made use of. In Karimnagar region the practice of playing with balls of

leaves of various species is in vogue. The girls collect leaves and make them into balls and secure the ball by tying with strings. The other method is to fill-up a small sack of cloth with seeds of tamarind (*tamarindus indica*) and custard apple (*Annona reticulata*) and then close its mouth tightly. The other type is a dried fruit of kapitha or wood apple (*Feronia Elephantum*) or bilva (bel or *aegle marmelos*) and custard apple (*Annona Squamosa*). The girls used to play a number of other indoor games such as hide-and-seek and run-and-catch which are graphically described in the Kamasutra.³⁴² The game of hop-scotch appears to be also popular as attested by number of rounded pot sherds in the excavations. Similar pottery discs are commonly found in almost all the early historical and proto-historic sites. Peddabankur excavation has recorded a good number of such pottery discs.

BURIAL PRACTICE:-

We do not have any evidence regarding the burial practices of the people during the early historical period. The excavations at Peddabankur and Dhulikatta have not yielded any human remains in and around the sites. There are two possibilities, viz; they might have carried their dead bodies to far off places for disposal at a common burial ground or they must have cremated the dead bodies so that even a semblance of the human remains has not remained. Even the charred bones from the pyre was collected to be immersed in the waters of the rivers specially at the places of confluence.

Some megalithic burials consisted of post-cremation charred bones besides post-excarnated remains. The burials consisting of post-cremation remains are considered to be later than the excarnated ones. In these we notice a transition from excarnation to cremation. It was succeeded in the later periods by the method of cremation only immersion of the ashes in the rivers after aryanisation. This is the nature of the evidence from some of the excavated sites where the megalithic and later cultures noticed sequentially. The characteristic black and red ware pottery and other antiquarian remains have continued to occur even during the late historical levels without much variation. The black and red ware pottery occurs even in the Ikshvaku levels dated to 3-4th century A.D. There is no perceptible gap anywhere in the culturel evolution, but the same may not be the case with burial practices. There is no evidence whatsoever that megalithism lingered on along with the occurrence of black and red ware.

An extensive cremation ground of Ikshvaku period at Nagarjunakonda is a convincing proof that the people had forgotten megalithism long back. Even some chayaastambas or memorial pillars eulogising the merits of the dead were erected at the cremation ground. Here we see the end of megalithism and the beginning of the cult of hero stones. Some of the hero stones were carved with the figures of the dead such as Sirichantamula, the Ikshvaku king, with an epitaph containing

a long account of the great deeds of the dead. Megalithism must have continued, not among the general public of that age, but retreated to the hilly regions or forests where indeed the primitive rites still continue among some tribal people. The practice still in vogue in the Karimnagar region is to collect post - cremation bones representing different limbs of the dead from the funeral pyre, and then keep them in a pot to be buried elsewhere. A small memorial structure is then raised over the burial. The spot where the urn is deposited is known as "Charana-stala".

CHRONOLOGY:

The antiquarian remains and the structural finds noticed at Peddabankur pertains mainly to two phases, the pre-Satavahana and the Satavahana. Some of the objects particularly the iron and the pottery with a profuse mixture of black and red and the tan wares may go with the later phases of the megalithic period. The elliptical structures found in the earliest stratum without any use of brick, may also correspond with the same phase. As discussed above, signet button garnet seal is inscribed with three brahmi letters as "Ka Ma Sa" in the Mauryan characters. Further, it is noticed that the silver punch-marked coins were found in two hoards, one consisting of 168 coins and the other 30 coins. Previously, about 480 punch-marked silver coins coming from Karimnagar region have been studied by P.L.Gupta and he classified them as belonging to four periods; Period-I was equated with that of the big Bheer Mound Hoard. The coins of period-II were dated to the Pre-Mauryan period and regarding the coins of period-III he suggested that this group is the earliest of the series. Regarding the coins of period-IV he has no date to offer. The punch-marked silver coins were current even during the Satavahana period. Some rectangular types were found in association with the Satavahana coins at Peddabankur but the above mentioned two hoards definitely come from the pre-Satavahana levels.

At Dhulikatta, the Buddhist stupa was decorated with a number of ayaka slabs, some of which bear legends in brahmi datable to circa 2nd century B.C. The drum of the stupa has seen two phases of construction; in the 1st phase the circular solid drum was constructed and provided with a square brick platform; in the second phase the drum of the stupa was much enlarged by raising another drum around the first and the second drum was decorated with the above said ayaka slabs, which may definitely be dated to 2nd century B.C. In that case the earlier drum must have been constructed during the 3rd century B.C.

Recently, we have received two carbon-14 determinations; one from the Birbal Sahni Institute and the other from Tata Institute of Fundamental Research, of the char-coal samples collected from the layers 2 and 3 at Peddabankur. Both the determinations give a date to the first century A.D. a date which could be easily arrived at even without the results of determinations on the basis of the Roman coins of Augustus and Tiberius.

Summing-up these evidences it is possible to give a date range from circa 3rd century B.C. to 2nd century A.D.

RESUME

We have now completed ~~an~~ detailed study of various cultural phases in the Karimnagar region up till end of the Satavahana period. We may now have a brief but comprehensive account of the same. We have already seen that the region is studded with a good number of prehistoric sites. Some of the sites in the adjoining region have also been discussed for a comparative study. The early stone age site explored by the author at Amarabad in Mahboobnagar district is situated at the slopes and the foot-hills of a range of hills to the north-west of the village in Mahboobnagar district. The section cuts across the bank of a nullah known as Katvavagu. It consists of the basal weathered granite rock upon which is a deposit of shingle associated with the Acheulian hand-axes, cleavers, choppers, and flakes. The shingle deposit is overlain by well cemented weathered laterite of pale brownish colour and granular in composition. This is again covered by red alluvium (recent) for a thickness of forty to sixty cm.

Typologically, the tools belong to the early and late Acheulian stages. The collection included excellent specimens of hand-axes, cleavers, chopping tools, scrapers, points and flakes etc. The cleavers constituted more than 50 per cent of the total collection but the hand-axes are only 18 per cent. Small axes or biconvex points and scrapers accounted for three per cent and the rest are flakes or worked flakes.

In the Karimnagar region, hand-axes and flake scrapers were reported by Munn at Allur and Jangoan villages in Peddapalli taluk. In association with these artefacts, he also noticed a few fossilised bones of "Bos frontalis" and fragment of an antler of 'Cervus'. From Adilabad, Haimendorf collected a large number of scrapers and blades. Nandikesvara Rao of the Geological Survey of India reported the occurrence of early stonage tools in the Pranhita valley of Adilabad district. During the recent years Takur Raja Ram Singh discovered many early and middle stone age sites near Godavary Khani, Ramagundam, Medipalli and Malkapur, all in Peddapalli taluk. The late stone age sites were discovered at Godavari Khani and Ramagundam in Peddapalli taluk near Pocherawater falls and Chittialapalli on the Suvarna river in Adilabad district. Other sites in Peddapalli taluk included Bugga near the foot-hills of Takkellapalli range, Devunipalli, Bangapur, Gopayyapalli etc. The most prolific among the late stone age sites discovered by the author is the site near Gourigundam which yielded a large number of cores blades, blade tools, and waste flakes. The cores found here are of three kinds, flat, pointed and obliquely based. The tools are blunted backs. A trench (3 x 3 mt.) cut to a depth of 12 cm. yielded the following material. Cores - 160 blades and primary chips - 2813, tools - 416 and waste flakes - 579 totalling 3988 artefacts in all.

The evidence of the neolithic sites in Andhra Pradesh was first discovered by Robert Bruce Foote in the year 1876 by the

discovery of sand stone adze near Vadamanu in Guntur district. After this discovery, over 50 sites, geographically situated in the present district of Hyderabad, Krishna, Guntur, Nellore, Kurnool, Cuddapah and Anantapur were made. In the year 1976, the author excavated a neolithic site at Polakonda in Jangoan taluk of Warangal district under the auspices of the Dept. of Archaeology and Museums, Govt.of Andhra Pradesh. Later in 1977 a minor excavation was conducted by N.R.V.Prasad at Budigapalli which is a neolithic-chalcolithic site. Many other sites were discovered and explored by the author in the region. They include Togarrai, Kadambapur, Peddabankur, Budigapalli, Devarauppala, Polakonda etc. At Togarrai a prolific neolithic factory site was discovered over a granitic out crop. The collection consisted of a large number of unfinished tools and waste flakes besides many finished axes and adzes. The tools of the neolithic man invariably made on dolerite or trap rock consisted of axes, adzes, picks, spheroid rubbers, ring-stones, querns, besides microlithic blades. Among the axes, there is a wide variety of forms namely tools with elliptical, lenticular rhomboidal, rectangular and triangular cross sections. The edges are mainly of three types plano-convex, triangular and rectangular. There is another specialised form of tool with a plano-convex section which is commonly known as shoe last celt. Peddabankur excavation recorded a fine specimen of such a tool.

In spite of the presence of very large number of neolithic tools in the Karimnagar region, ~~but~~ pottery appears to be rare. Only the excavation at Polakonda gave us an idea of the neolithic pottery in this region. It generally consisted of crude and coarse hand made wares along with a few burnished types. The pottery in general was well burnt to a grey, dull-brown or black colour. At Polakonda we have the evidence of a kiln in which the neolithic pottery was baked. The kiln consisted of thick walls of clay in which the pots were kept and burnt by an application of indirect heat. The neolithic ceramic assemblage noticed at Polakonda consisted of grey, pale grey, ^{lithic} brown, black burnished and mattred wares. For most of the specimens, the clay was well levigated. The pottery from the early levels, is more gritty and distinguished by low firing, leaving black cores inside. The types included a huge jar with an elongated neck, featureless everted rim and straight sides. On the shoulder there is a thick applique band horizontally decorated with finger tipped designs. A distinct shape is a channel-spouted bowl which Foote designated as a milk bowl. There is also the huge jar with featureless splayed cut rim, concave neck and globular profile. On the shoulder, it has a thin applique band which terminates in curved ends in the opposite direction.

The physiographical and geological features have considerably contributed to the establishment of neolithic settlements in the

Karimnagar region. The neolithic folk chose open terraces at the foot of the hills wherever the natural rock shelters are available. However, they sometimes selected black soil plains and sometimes they lived on the river banks as noticed at Kadambapur, Togarrai, Polakonda etc. The post-holes, noticed in some excavations indicate the nature of hutments. They were circular in plan made of wattle and the roofs were possibly covered with some perishable material. The wood used for posts to raise the houses was of acacia or dalbergia species. Some of the rock-shelters noticed at Budigapalli and Kadambapur in the vicinity of the neolithic settlements must have been utilised by them.

The economic life of the neolithic man consisted of a combination of agriculture, animal-husbandry and hunting. They depended on, besides cultivation, hunting and fishing and whatever naturally available such as the fruits, vegetables, edible tumors etc. However the general occurrence of domestic implements such as querns, grinders etc., may suggest the limited practice of agriculture. The evidence of grain such as horse-gram (*doliches biflorus*) green gram (*phaseolus madiatus*) and ragi (*eleusine cora cana Africanus*) from Paiyampalli in Tamilnadu and other places which are not far removed either geographically or culturally from this region indicate that similar grains might have been grown ^{or} procured during the neolithic period here also.

The works of art of the neolithic people have survived in the form of rock paintings, rock bruising, pottery decorations and terracotta figurines. The author recently chanced upon some rock paintings situated at Regonda, Budigapalli, Kokapeta, Mudumala and Ketavaram in various districts of Andhra Pradesh.

As in other places, the neolithic period was succeeded by the megalithic. The megalithic problem has previously been studied by some scholars such as Wakefield, Hunt, Taylor etc. During the recent years the Department of Archaeology and Museums conducted excavations at various megalithic sites such as Pochampad, Yeleswaram, Kadambapur, Agiripalli, Jonnavada, Peddamaipur, Uppalapadu and Chagatur. In the course of explorations, the author noticed an extensive complex of dolmens at Amarabad in Mahboobnagar district.

There are about twenty to twenty five of them with intervening space upto ten to fifteen ft. The dolmens are constructed of dry masonry walls by piling up flat cut slabs. A roof was made of a roughly rectangular or circular granite slab with a thickness of 15 to 20 cm. The height of the wall between the floor which is the natural bed rock and the roof slab never exceeded 1 mt.

At Mudumala, a large number of stone circles and stone alignments were reported. These consisted blocks of stones about 4 to 4.5 mt. in height. There are 7 such rows covering

an approximate area of 75 sq.mt. On the south west of the village there are some rock bruising incised over huge boulders.

A few cist burials were excavated at Agiripalli in the Krishna district under the supervision of the author. Some of the cists consisted of calcined bones and a few miniature pots of black and red ware. One cist burial was found at the floor level of another cist which contained 4 skulls and other bones such as femur, tibia etc. Slightly away from the cist, a few sarcophagi were also exposed. It is interesting to notice various burial practices such as stone cist, terracotta sarcophagus and burial urns at the same place. It is also noticed both cremation and excarnation were practised but stratigraphically excarnation was earlier.

In the Karimnagar region, a few megalithic burials have been excavated at Janampet, Dongategu, Polichetticherugudda etc. In the recent years, the Dept. of Archaeology, under the supervision of the author conducted excavations at an extensive burial site, situated near a hamlet known as Kadambapur in Peddapalli taluk of Karimnagar district. Five burials have been exposed here, four of them being pit circles and one a port-hole cist. In one of the burials, a skeleton with complete articulation was noticed in the middle of the pit. On both the flanks of the skull, there were two spiralled wire

ear rings. A 28 cm. dagger was found near the collar bone. Interestingly enough, the legs were found amputated at the ankles. The truncated parts were placed over two stones. Two conch shells with their bottoms cut out and placed near the hands indicate that they were used as bangles.

The megalithic burials yielded a large variety of antiquities such as pottery, iron objects, ornaments such as beads of terracotta, semi-precious stones, gold, copper etc. Some grains of paddy and other cereals were also found. The most important among the burial offerings is the pottery which consisted mainly of the black and red, the black polished, red polished and coarse red wares. The megalithic pottery types have been classified into two groups viz., the coarse and unpolished receptacles like the burial urns, the sarcophagi etc. and the well fired often slipped and finely polished smaller vessels.

The rare types in the black and red ware included chalices or bowls on hollow pedestals the latter with or without slits. Some rare types from the megalithic burials in the Karimnagar region included deep bowls, all black ware conical lids, funnel-shaped lids with various types of knobs, hat-shaped lids, gourd shaped vessels with narrow necks and visage pots with three perforations. This is probably the rarest in peninsular burials in South India. The iron objects included a number of daggers of various sizes, a goad or ankusha, chisels,

arrow-heads, horse-bits such as stirrups, curb chains, axes with crossed fasteners, battle axes, sickles, and screw objects etc. In the megalithic levels at Polakonda, two mattocks without shaft holes were noticed. From Peddabankur megalithic habitation, an adze with crossed fasteners was collected.

The copper objects included ferrules, or casings for weapons like daggers etc. bells and cups. There are also a few copper bowls, rattles, collyrium rods, bangles and rings.

Gold objects from the megalithic burials included spiralled ear rings, cylindrical beads disc beads etc. A large variety of beads were noticed from the burials and the habitation sites. These included beads of gold, silver, copper, besides different types of semi-precious stones, such as carnelian, jasper, agate, onyx, serpentine, lapislazuli, milky quartz, amethyst, glass, terracotta, shell and bone. Annular shaped terracotta, shell and bone. Annular shaped terracotta beads are common from Kadambapur and Pochampad burials.

The location and type of the megalithic burials depended upon the geological and geographical conditions. They are invariably noticed over rocky high ground unfit for cultivation and in close proximity to hillocks or an irrigation tank. To some extent the needs of cultivation might have dictated the situation of the burials but the availability of raw material for building such elaborate monuments might have been

the main inspiration. In the Karimnagar region, no habitation was found near some of the burial sites. The burials at Kanukula near Sultanabad were situated over plains of red sandy silt which is fertile for dry farming. At Kolakonda in Warangal district the cemetery is situated over fertile plains of red soil which is now under active cultivation, but is just 100 mt. away from a range of hills where plenty of raw material such as granite boulders and slabs are available.

Our knowledge of the domestic architecture is limited to the evidence supplied by the excavations in a few habitation sites. In the Karimnagar region we have evidences from sites like Peddabankur, Kolakonda, Polakonda, Budigapalli, Yeleswaram and Peddamarur. In any of these sites no permanent structures were noticed. At Peddabankur, excavated by the author, a number of elliptical structures exposed in the lowest strata are definitely assignable to the megalithic period. In view of the associated characteristic finds such as pottery, beads and other objects. The recently conducted excavation, by the author, at Peddamarur, revealed a few post-holes in the strata assignable to the megalithic phase. It is really interesting to note that though plenty of shale slabs were available at Peddamarur there is no evidence of its use for habitational structures.

The geological factor has a definite bearing on the sepulchral architecture of the megalithic folk. The megaliths

were invariably built of the locally available stone. When laterite or dolerite was not available for erection of the boulder circles they made use of whatever was locally available such as conglomerate boulders or some times the shale slab horizontally piled up into a circle around the burial. In the lateritic regions they carved underground cells for burying their dead. When any kind of suitable stone was not available they made use of terracotta urns. The entire burial site at Tenneru in Krishna district consisted of only sarcophagi burials in the shape of bath tubs.

The main basis of their economy was agriculture supplemented by hunting and domestication of animals. Various scholars have opined that the megalithic folk were responsible for the introduction of advanced methods of agriculture based on irrigation. Most of the burial sites are situated in the proximity of large irrigational tanks as at Budigapally, Torrur, Kanukula, Kadambapur, Polakonda, Rajagopalapet, Ramunipatla and Kethreddypalli. It appears that rice and regi served as their staple food. This was supplemented by domestication of a variety of animals such as sheep, goat, swine, fowl, and cattle. The food habits of the megalithic folk at Peddabankur demonstrated that cattle formed a considerable part of their diet. The dog, wolf, hyena and horse were known to them. Their knowledge of horse and its utility are well attested.

The artistic sense of the megalithic people is well displayed in many of the rock paintings, the paintings at Budigapalli consist of horses with riders. In the paintings noticed at Regonda, two little men ride a disproportionately big horse. The paintings also consisted of tridents bisecting a circle below and simple tridents without circles. Several such tridents bisecting circles below, were indented on the orthostats of some megalithic cist burials at Chagatur.

We are at a loss to know the religious beliefs and objects of worship during the megalithic period. Some scholars have suggested that the occurrence of trident or trisula which is invariably associated with Siva and other deities might have some religious connotation. In the rock brusings at Mudumala, there is a figure of the Mother Goddess with outstretched hands and legs,. This figure associated with the above mentioned trident, bisecting a circle, may be the a cult figure and in all likelihood is the arch-type of the Mother Goddess figurines in terracotta noticed in the Satavahana and later levels. The orientation of the burials either in the north-south direction or in the east-west direction may be an indication that the people were sentimental about the direction and must have been worshipping the deities of the quarters. In one of the cist burials excavated by the author at Peddamarur an all black ware dish was stamped with a solar disc with radiating circle in the middle enclosed by

tongues of flame inside two concentric bands. This may be indication that they believed in Sun God as well.

Anthropometric studies of the skeletal remains from the megalithic burials reveal that some of them belonged to the autochthonous australoid type and more or less medium statured mesocranial type which is designated as Scytho-Iranian. The studies of the skeletal remains from Yeleswaran have revealed that they corresponded to brachy-cranial groups. The Tannera skulls were identified by Bhowmik as brachy-cranial. There is also an element of dolicho-cranical group.

Mortimer Wheeler suggested that the megalithic culture could be dated between 200 B.C. to circa 50 A.D. He arrived at this date range in view of the stone axe culture overlapping with the earliest megalithic level and the terminal date was fixed by the commencement of Andhra Culture dated on the basis of Roman antiquities. Fortunately, now we have a series of radio-carbon dates from various sites. Hulur gave the earliest date as 1105 B.C. (-) 105 and the latest being of Halingali which gave 80 B.C. The megalithic habitation at Takalghat was dated to 597 B.C. This was the date obtained from the middle horizon. The first phase of occupation of the earliest megalithic horizon may still be pushed back by about a century or more assigning it to circa-8-7th century B.C.

As in the other regions, the early historical period succeeded the megalithic. The whole of Karimnagar region is

dotted with a number of early historical sites. It is really tantalizing why the early historical sites are concentrated so thickly in the Karimnagar region. It is likely that the political nucleus of the whole or a part of Deccan must have been situated in the region, alternately it might have been commercially very important and the ancient caravan routes traversed through the region. Lastly, agriculture being the main occupation of the people and the area marked by extensive tracts of arable and alluvial black soil plains the people must have preferred the region. Some important early historical sites are noticed at Peddabankur, Dhulikatta, Chinnabankur, Vemur, Kapparaopeta, Kotilingala, Kachapur, Bodagutta, Bompalli, Rachapalli, Paidichintalapalli, Khadimkanagarthi, Karnamamidi, Bodhan, Vadleor, Kolakonda, Polakonda, etc. The sites may be mainly divided into two categories, fortified and the unfortified. The early historical mound at Dhulikatta is enclosed by a mud rampart. Four gateways were traced at the four cardinal points. The excavation conducted by the author at the southern gateway revealed the guard rooms prefaced by a gatehouse. The guardrooms comprised two rectangular halls with a middle pathway which is 14.40 mt. broad. The gatehouse which prefaced the guardrooms constitute a broad gateway outside and ambush niches on either side in the middle. The facade of the gateway must have had one or more storeys with terraced roof, railings and pillars. The

mud ramparts with a height of 5 mt. was constructed of earth dug out on the outside.

At Kotilingala, situated at the confluence of the Peddavagu and the Godavari, is an early historical mound enclosed by a mud fortification. The mound is roughly 50 hectares in extent, probably, the most extensive so far discovered in the Karimnagar region. At the present town of Bodhan in the Nizamabad district is another extensive early historical site to an extent of about 1 sq. km. Some writers believed that it was once the capital of Asmaka country, known as Potali or Podana.

At Vadloor is another site in the Kamareddy taluk of Nizamabad district surrounded by a mud fortification to a height of 6 to 9 mt.

The villages of the early historical period were marked out by natural boundaries such as forests, thickets, rivulets, hills, etc. The settlement at Peddabankur was a village site with no ramparts around. The excavation conducted by the author under the auspices of the Department of Archaeology and Museums revealed three huge brick enclosures, two of them measuring 30 x 30 mt. and the third one measured 18.75 x 18.75 mt. The enclosures appear like small castles and have only a single gateway either in the north-east or north-west corner. These were evidently occupied by the wealthy individual families.

The roads and their planning formed one of the most important aspects of town planning. The road through the southern gateway at Dhulikatta was paved with rubble and veneered with morrum and sand. This might be the method of constructing the road in other towns as well. The important commercial towns and villages was possibly connected by a net work of roads. The region was actually traversed by the ancient trade and pilgrim routes (sarthayahapatha) leading from north to south and east to west. Probably, it was considered essential to surround the townships with hills and mountains to serve as natural barriers to obstruct the enemy forces from attacking them and also add to the effect of the landscape. Fortification was needed when the towns or the villages are built on plains. After the towns have been planned the roads both highway and the central ones together with maharathyas, uparathyas have been planned out. The excavation in the middle of the mud rampart at Dhulikatta revealed a palace complex and residential quarters which have seen several phases of construction. The plan of the main building especially of the 3rd phase may resemble that of a quadrangular building known as chatussala, with four rectangular halls on four sides and a central courtyard opening to the sky. This phase was characterised by a spacious halls with floors paved with brick, multi-storeyed buildings granaries, wells and drains connected to a network of sewage. The granaries

were constructed of brick in the shape of an inverted pyramid, tapering towards the floor. The bricks were laid in receding layers so that one can easily get down to the floor. The buildings of the fourth phase were plastered with lime and burnished to smooth surface. The most notable feature is the lime concrete-paved floors.

Whatever water was used by the householders had been drawn from wells constructed of brick and occasionally terracotta rings. Peddabankur excavation revealed as many as 22 wells. Of these only a single well was lined with terracotta rings with square brick easing enclosing the rings at the top course. It was noticed that the semi-circular flat based bricks (hog-backs) to a height of about 30 cm. were kept over the top courses of some of the wells at the place where from water was drawn, possibly, in order to allow water slip inside or outside the well to avoid damage to the brick-lining.

Brick cisterns or troughs formed invariably the essential feature of civic life. Many such cisterns noticed at Peddabankur were constructed of well-burnt bricks. Some of these had floors rammed with morrum and then paved with bricks to prevent percolation.

None of the sites excavated gave us any evidence of the temples of the Brahmanical origin. But the excavation at Dhulikatta revealed a Buddhist stupa. The stupa consisted of a

brick drum to a height of 2 mt. over a single layer of rubble basement. The anda or the dome rises over the garbha to a height of 5 mt. and crowned with a harmika and abhatra. The lowest brick course of the anda above the drum slightly projects and then a layer of morrum to a thickness of 36 cm. was laid over the first course. The second course of brick above the morrum was arranged in headers and stretchers. The garbha of the stupa was decorated with 47 carved ayaka slabs. On one of the slabs the Muchilinda naga protecting Lord Buddha, symbolically represented by his feet, was exquisitely delineated. Another Buddhist settlement more extensive than Dhulikatta was situated on the top of a flat hill near the village Phanigir in Jangoan taluk of Warangal district. There are ruins of more than 30 stupas, most of them circular in plan and raised over rectangular stone basement. As the establishment was raised over the hill the constructions were supported by buttresses in the shape of boxes in order to prevent erosion. Gajulabanda, about 5 km. east of Phanigir, is another Buddhist settlement which is situated near a huge tank. A trial excavation by the Department of Archaeology and Museums revealed the existence of a stupa, vihara complex and chaitya. The construction of the stupa indicated two phases with marked variation in plan and execution. A totally ruined Buddhist stupa was noticed at another village by name Tirumalgiri in the Jangoan taluk. The entire area which was hallow by the presence of Buddhist stupa is now occupied by recent hutments.

The early historical settlers in the Karimnagar region had attained a very high degree of civilisation having fortified towns, palatial buildings, sewage, well laid-out roads and a good water supply. Their economic life was a combination of agriculture, animal husbandry, hunting and metallurgy. Most of the towns and villages were raised in the middle of arable plains. The clearing operations of the jungles for making the land suitable for cultivation were carried out with the help of flat celts of iron hafted to wooden handles. In the later stages, socketed axes have arrived on the scene. A large number of sickles found in the excavations were used for harvesting. We also recovered a good number of plough-shares. The extensive use of oxen in agricultural operations for heavy traction or prolonged draught work is attested to by ankylosed bones of cattle. Besides the agriculture operations, many animals such as cattle, buffalo, sheep, goat, dog, swine etc., were domesticated. In addition to the domesticated animals they practised hunting of wild animals. The hunted animals included deer, pig, turtle and a large variety of birds.

The carpenter played an important role in the economic life of the people. The village ^{artisans} dwellers included the carpenter, the potter, blacksmith, barber, and washerman.

The knowledge of iron smelting and forging was known from the beginning of the 1st millennium B.C. The iron ore was found

and smelted at Warangal, Konasamudram, Dindurthi, Komarapalli, Eranapalli, Tellakunta, etc. The method of smelting consisted in laying several alternate courses of charcoal and iron ore and daubing the entire pile thickly with clay to prevent heat from escaping. The kiln, circular in plan, must have been provided with passages for the intake of air and escape of gasses and outlets for molten iron. The collected molten iron was cooled off by inserting it into water and then hammered out for removal of charcoal. The method of manufacturing steel practiced in the Karimnagar region was to cut out blocks of iron into small cubes. These small cubes were put in crucibles of various sizes. The fire is then kept up with dried branches of teak, bamboo and green leaves of various species. It is then allowed to subside and when the crucible is opened a cake of great hardness is found weighing half a pound or more than the original cube placed in the crucible. One such crucible found at Dhulikatta is made of iron and measured 15 cm. in diameter.

There is a vast assemblage of iron objects from early historical sites particularly from Peddabankur and Dhulikatta. These included weapons of war and chase such as spearheads, lanceheads, spikes, and arrowheads. The agricultural implements included sickles, ploughshares, spades, etc. The tools of the blacksmith are the bellows, sledge-hammer, axe and tongs. The carpenter's tools included axes, adzes, chisels, drills and

saw-blades, nails, rivets, staples etc. There is a wide variety of domestic implements such as choppers, knives, razors, fork, lamps, ladles, domestic trowels, keys, ferrules, stylii, antimony rods balancing rods etc. The copper objects included mainly antimony rods, sewing needles, tooth-pick, ear clearer, finger rings, bangles, amulets, ear spools, spoons and stylised palms, jewel boxes, copper rattle etc. The lead objects are beads, bangles and spools. There are also good number of bone, shell, and horn objects. Among the horn objects are many arrow-heads mainly of two varieties; one type is pointed at one end and the other end is faceted. The other type of arrow-head is pointed at both the ends. Among the bone objects are many game-dice.

Bead making was a very prosperous industry during the early historical period. The common semi-precious stones used for beads are carnelian, agate, banded agate, garnet, blood stone, beryl, jasper, amethyst, quartz-crystal, lapislazuli, besides glass terracotta and shell.

Like architecture, the sculptural art also reached a very high degree of perfection. The Buddhist stupa at Dhulikatta is decorated with 47 carved ayaka slabs. Some of them display a five hooded Muchilinda Naga. The naga slab was flanked by two ladies standing with floral offerings. The ladies are profusely decorated ornamented with squarish ear ornaments, stamped with a beautiful lotus medallion, the

profuse hair made into a side-knot, a broad necklace of several strands, a broad waist belt with a middle band of lugged tabloid beads, and beaded wristlet.

Besides the solemn religious scenes, the panels also display some sportive themes where a man holds the tail of a fleeing tiger.

The excavations have yielded a large number of terracotta figurines of both human beings and animals. The collection also included somshand-made archaic figurines. Among the female figurines are Mother Goddesses with head shown as a prominent mass with a round halo at the back and the breasts, hands, and legs pointed. Among the figures made of double moulds, there are three types of Mother Goddesses; one is shown with out-stretched hands and arm lifted. The second type is made of kaolin, and holds a bunch of fruits in her right hand while the left hand is simply resting on the thigh. A parrot, perching on the right arm is nudging at the breast of the Goddess with its bill. In the third type the Goddess holds her prominent breasts with her hands from below.

There are three terracotta seals inscribed in brahmi, two button seals of which one is made of ivory and the other of garnet. One terracotta seal is inscribed in brahmi as "Maha Talyavasa Vajasanikasa Seva Sabha". A beautiful horse was stamped in the middle of the inscription. The other seal is

inscribed with the legend "Vijaya pura hara kasa ratana". The ivory seal is inscribed with the legend "Ajani Siriya Game Kumaranya". The garnet seal, probably the earliest of all, is inscribed with the legend "Ka Ma Sa" on an ovoid bezel.

Pottery forms the most essential need of the daily life of the common people. The entire range of pottery recovered from the early historical sites is mostly wheel-made. Broadly, the pottery can be classified into utilitarian and ritualistic. The types include storage jars, smaller storage jars, water pots, carinated bowls, lid-cum-bowls, deep bowls, dishes, globular vessels, straight or concave-sided bowls, spherical bowls, lotas, pyriform wine vessels, lamps, ring stands, finials etc. Among the ritualistic wares is a globular vase stamped with triratna or nandipada symbol. Some of the dishes have white-painted spiralled design on the base of the interior. In the intervening space between the spirals there are white painted dots of different sizes. A pedestalled cup decorated with bands of vertical and oblique lines might have been used as a censer or offering stand. Some pots are decorated with various designs such as chevrons, inside marginal bands of vertical notches, oblique notches above horizontal bands, circles enclosing endless triangles, creepers emanating from circles, lotus enclosed in serrated circle, tree symbols below concentric circles, six petalled lotuses, twelve petalled lotuses, etc.

Many potsherds are scarched with graffiti marks such as arrow, inclining triangles plough, brahmi "MA", fish circle enclosing a cross, bow and arrow.

Coinage became universal during the early historical period. Even the Mahsaudipathis and the Maharatis were issuing coins in their names besides the coins of the imperial dynasty. Peddabankur excavation yielded two hoards of silver punch-marked coins, one consisting of 168 coins and the other of 30. The coins are broadly divided into rectangular and round. Among the rectangular type, there are two variations cliped and uncliped. Among the round types are found the rounded and ovoid varieties. The weights of most of the coins range between 3.32 to 2.4 grams. A potin coin with a big svastika symbol in the middle, with the legend of Mahasena on the obverse and an arrow and thunderbolt in a dotted circle on the reverse is noticed at Peddabankur from stratum, earlier than that of the Satavahanas. There is also a large collection of Satavahana coins from the Karimnagar region especially from the excavations which include the coins of Satavaha, Satakarni-I, Gautamiputra Satakarni, Vasitiputra Pulamavi, Sivasiri Pulamavi, Vajna Satakarni and Rudra Satakarni. Interestingly, a single silver portrait coin came from Dhulikatta excavation pertaining to Vasistiputra Sivasiri Pulamavi. Besides the above coins Peddabankur excavation yielded five Roman coins and four coins made of lead plated with gold. These imitations have double perforations for suspending them around the neck. The remaining

coins belong to Augustus (29 B.C. to 14 A.D.) and Tiberius (14 to 37 A.D.).

There are clear evidences of urbanization during the early historical period. The politically and commercially important towns were provided with ramparts with gateways at the cardinal directions. The mud ramparts were usually raised with the earth dug out from outside the settlement and the trenches thus excavated simultaneously served as moats. As most of the settlements have grown up on the banks of the major and minor rivers, people might have covered distances by boats made of wattle and covered with animal skin for making it water-tight. The region was traversed by highways from the north to the south and from the east to the west, but the routes were covered with heavy jungles full of savage beasts of prey. Most of the merchandise must have been carried by caravans of pack animals. There was also a net work of drains and water was supplied mainly by the rivers and brick-wells. Industries such as metallurgy and bead-making was scattered and every village and town was self-sufficient.

Commerce occupied an important place in the economic life of the people. Several classes of workers such as knilarikas, udayantrikas, tilapisakas, dhannikas, kolikas, vacakaras, kaasakaras are mentioned in the contemporary records. Each of these artisan groups had a guild or sreni of their own. The special feature of these associations was the banking facilities provided by them. There were a number of market towns

in the interior such as Paithan, Tagara, Junnar, Karahakata, Nasika, Govardhana and Vejayanti.

The people used to dress themselves in accordance with time, region and profession. We have evidence of the dress of the period from various sculptural representations and terra-cotta figures. The people decorated themselves with ornaments from head to foot. They were known as pakarika, chandrakarnika, chakrakundala, pendants, necklaces, rings, wristlets and anklets.

The evidences regarding the brahmanical religion are not quite clear. The religious beliefs still centred round local primitive forms of worship and rituals. They believed in the village gods and goddesses, tree and serpent cults and probably practised worship of the spirits. There are four types of Mother Goddesses, one is the Ankadhatri, or the mother and child, secondly, the Goddess with out-stretched hands and legs, thirdly the goddess holding a bunch of fruits and a parrot perching on the right arm nudging at the breast of the Goddess and in the fourth type, the Goddess holds her prominent breasts with her hands from below. Gajalakshmi was worshipped from a very early time. Regarding Buddhism, we have evidences of the stupas at Dhulikatta, Phanigiri, Gajulabanda and Tirumalagiri. It is likely the people believed in Gods and Goddesses as noted above and at the same time converged together from distances for the worship of Buddhist stupas.

The early Satavahana kings were staunch followers of Vedic religion. We find mention of various gods such as Dhama, Ida, Sankarshana, Vasudeva, Chandra and the four lokapalas viz; Yama, Varuna, Kubera and Vasava. The invocation to Dhama in precedence to Ida and Sankarshana etc., is clear evidence of Buddhist leanings and at the same time equality of the Buddhist faith with the Vedic religion.

The people relaxed themselves by indulging in various sports and pastimes which included many indoor and outdoor games and other recreations. The game of dice is a very ancient and popular pastime. The other favourite sports were hunting, taming of birds, animal fights etc. The games specially intended for women are mostly indoor types such as kanduka-krida or game of ball, hide and seek, run and catch and the hop-sketch.

The evidences are not explicit regarding the burial practices of the people during the early historical period. There are two possibilities viz; they might have carried their dead bodies to far off places for disposal at a common burial ground or they might have cremated their dead bodies so that even a semblance of the human remains has not remained. Even the charred bones were collected for immersion in the waters of the rivers. An extensive cremation ground of the Ikshvaku period at Nagarjunakonda is a convincing proof that the people had forgotten megalithism long back. Some of the chayaarthambas erected at the burning ghat suggest the beginning of the cult of Hero-stones.

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DESCRIPTION OF PLATES

Plate 1

- a) Excavation of a neolithic site at Polakonda
- b) Section showing neolithic deposit
- c) Neolithic tools in making from Togarrai factory site

Plate 2

- a) A long neolithic celt from Peddabankur excavation
- b) Neolithic celts from Peddabankur, Polakonda etc.
- c) Neolithic stone bolas, a ring stone from Budigapalli

Plate 3

- a, b, c) Eye-copies of the neolithic rock-paintings at Kethavaram

Plate 4

- a) Painting of a bull in a rock shelter at Budigapalli
- b) Rock-brusings and the plan of the megalithic alignments at Nudumale
- c) A terracotta figurine of probably a buffalo luted to a sarcophagus found inside a cist burial at Peddamarur

Plate 5

- a) and b) Dolmens at Amarabad
- c) Photograph of the brusings on the orthostat of a megalithic cist burial at Chagatur
- d) Upper portion: Showing battle axes found at different places in India
Lower portion: Eye-copies of symbols incised over the orthostats of megalithic cist burials at Chagatoor

Plate 6:

- a) An urn pot from Bayyaram with 3 legs in the shape of the teats of a cow
- b) Terracotta sarcophagus with rounded top and a door in the middle recovered from Maski excavations.
- c) A pentagonal terracotta sarcophagus with door and door-slab from a megalithic cist burial at Peddamarur

Plate 7:

- a) Black ware lids with knobed, ringed and horizontally projecting terminals
- b) A funnel shaped goblet over a coarse-red ware ring-stand found in situ from a megalithic pit burial at Kadambapur
- c) Funnel shaped goblets from 1) Pochampad 2) Kadambapur 3) Piklihal and 4) Pochampad
- d) Hat shaped lids from cist burials with passages at Peddamarur

Plate 8:

- a) Flat celts of iron from megalithic level at Peddabankur
- b) An adze with crossed-fasteners shown in the middle of the photograph compared with a neolithic adze on the left and a shaft holed one on the extreme right from the Satavahana level at Peddabankur
- c) Two iron mattocks from Polakonda and a curb-chain of horse from megalithic habitational level at Peddabankur
- d) Iron arrow heads of the early historical period

Plate 9:

- a) Medium sized pots from 1) Agiripalli; 2 and 3 from Peddamarur megalithic cist burials. The middle on has 3 perforations to represent a visage type.
- b) Adzes with crossed fasteners, and chisels from megalithic levels at Peddabankur
- c) Battle axes from Kadambapur and Pochampad
- d) Mattocks from the megalithic levels at Polakonda

Plate 10

- a) Rubble basement of an elliptical structure found in the Pre-Satavahana level at Peddabankur
- b) A brick structure from the early Satavahana level at Peddabankur
- c) A well with wedge-shaped brick from the Satavahana level at Peddabankur
- d) A brick well of the Satavahana period shown in section from Peddabankur

Plate 11

- a) Spear, Lance and spike heads of iron from Peddabankur
- b) Chisels, Rivets, Nails from Peddabankur and Dhulikatta
- c) A long spike head in the extreme left and the remaining arrow heads of iron.
- d) Spike, Spear and lance heads of iron from Peddabankur

Plate 12

- a) Balancing rods thickened in the middle from the early historical levels at Peddabankur
- b) Domestic trowels and a lamp from Peddabankur
- c) A figure of a snake of iron with 3 perforations on the head

Plate 13

- a) Choppers and knives from Peddabankur
- b) Razors, ladles, a lamp and keys from Peddabankur
- c) Ladles, a lamp and a curb-chain (of horse) from Peddabankur
- d) A staple, domestic trowels and plough-shares from Peddabankur

Plate 14

- a) Sickles from Peddabankur
- b) Plough-shares, a staple and domestic trowel from Peddabankur
- c) A spade, an adze with a ^{shaft} socketed hole, a pick and flat celts from Peddabankur
- d) Staples, nails and keys from Dhulikatta and Peddabankur

Plate 15

- a) An Yaksha enclosed in a lotus medallion on a pilaster at the Buddhist stupa at Dhulikatta
- b) An Yaksha with protuberant belly, and his hands, legs and ears depicted like those of an elephant.
- c) Muchilinda Naga flanked by two lady votaries on either side at the Buddhist stupa, Dhulikatta

Plate 16

- a) Relief carving of Stupa on an ayaka slab at the Buddhist stupa
- b) Miracle of Sravasti on a pilaster at Dhulikatta
- c) An inscription in early Brahmi characters (2nd cent. B.C.) reading as "Gahapatīho Pāthalasa Matariputasa āyagō danam" over the frame of the Muchilinda Naga slab.

Plate 17

- a) A Mother Goddess holding her breasts with her two hands from below, found at Dhulikatta excavation
- b) A terracotta head of a Jar in the shape of a human being
- c) A Mother Goddess holding a bunch of fruits with right hand and a parrot nudging her left breast.

Plate 18

- a) Seals:- 1) Top: an ivory seal found at Dhulikatta inscribed in brahmi as "AJANI SIRIYA GAMBE KUMARIYA"
 2) Below on the left: a terracotta seal reading as "Vijaya Purāhārakasa Ratasa" with a plough incised in the middle
 3) Below on the right: a terracotta seal from Pedda-bankur reading as "Mahatalavarasa Vaja Sāmikasa Sēva Sabha" with a beautiful horse in the middle
- b) A terracotta seal of Gajalakshmi from Peddabankur excavation
- c) A garnet seal with a transverse perforation inscribed in brahmi as KA MA SA, and a symbol with four loops at the four corners of a square,

Plate 19

- a) Sketches of Storage jars from Peddabankur
- b) Water pots and carinated bowls
- c) Deep bowls, conical bowls, dishes, a globular pot etc.

Plate 20

- a) Globular pots and lotas from Peddabankur
- b) Straight sided vessels, vessels with ellipsoidal body, wine jars (top extreme right)
- c) Finials, lamp-stands, medium sized pots with corrugated body and a censer or offering stand

Plate 21

- a, b, c) Decorated pot sherds from Peddabankur excavations
- d) A silver portrait coin of Sivasiri Pulōmāvi showing obverse and reverse devices, from Dhulikatta excavations

Plate 22

- a) Top row : beads of blood stone
 Middle row: 1) agate, 2) glass gadrooned 3) black agate
 4) and 6) are of blood stone
 Bottom row: Silver lugged tabloid beads of a waist band
- b) Top rows: 1 and 2 etched and painted carnelian 3 to 5 plain carnelian
 Middle row: tabloid spherical carnelian, the last one is an etched red Jasper bead but not painted
 Bottom row: banded agate, etched and painted agate, truncated barrel shaped banded agate, bead
- c) Rows 1 and 2: Beads of quartz crystal
 Third row : Terracotta beads of rudraksha star and amalaka shaped cylinders
 Fourth row: Terracotta cylindrical grooved beads
- d) Top row: terracotta ear ornaments (chandrakarnika)
 Middle row: Crystal pulley shaped ear spools
 Bottom row: Finger rings of shell

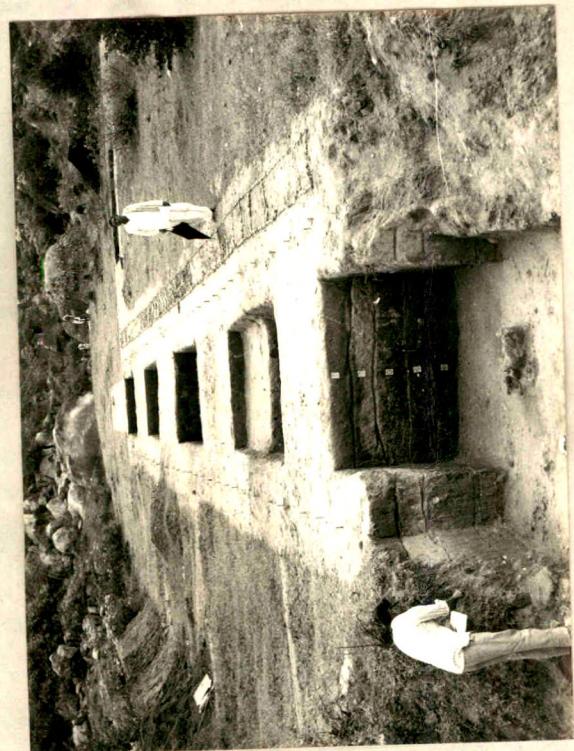
Plate 23

- a) Top row: 1 and 2 fragments of copper bangles, 3 anklet of copper wire
 Bottom row: A crescentic suturing needle(?)
 A lead bangle serrated at the periphery
 A copper bangle
- b) Top row: Copper stylised palms and signet rings(right side)
 Bottom row: Copper wire rings and a signet ring
- c) Copper ear ornaments, the top one is solid rolled strip with middle perforation and the lower one is hallow with concentric circles on the drums
- d) Copper needles, antimony rod, tooth pick, ear cleaner, a rattle in the shape of a frog, a spoon of an apothecary and three amulets (at the bottom corner)

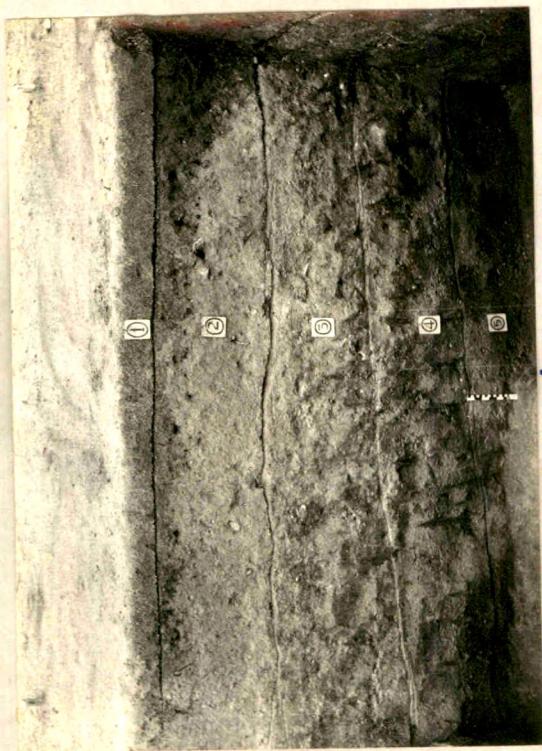
Plate 24

- a) Copper wire rings
- b) Tops: a bezelled ring incised with an eye shaped design
 Bottoms: Copper spiralled finger ring
- c) Top row: Lead ear ornament and bead
 Middle row: Terracotta pulleys
- d) Top row: Game dice of bone from Peddabankur excavation
 Bottom row: A horn pulley-shaped ear ornament, a handle of a mirror with mouldings carved on lathe
 3 and 4 bone points or arrow heads.

Plate - 1



a



b

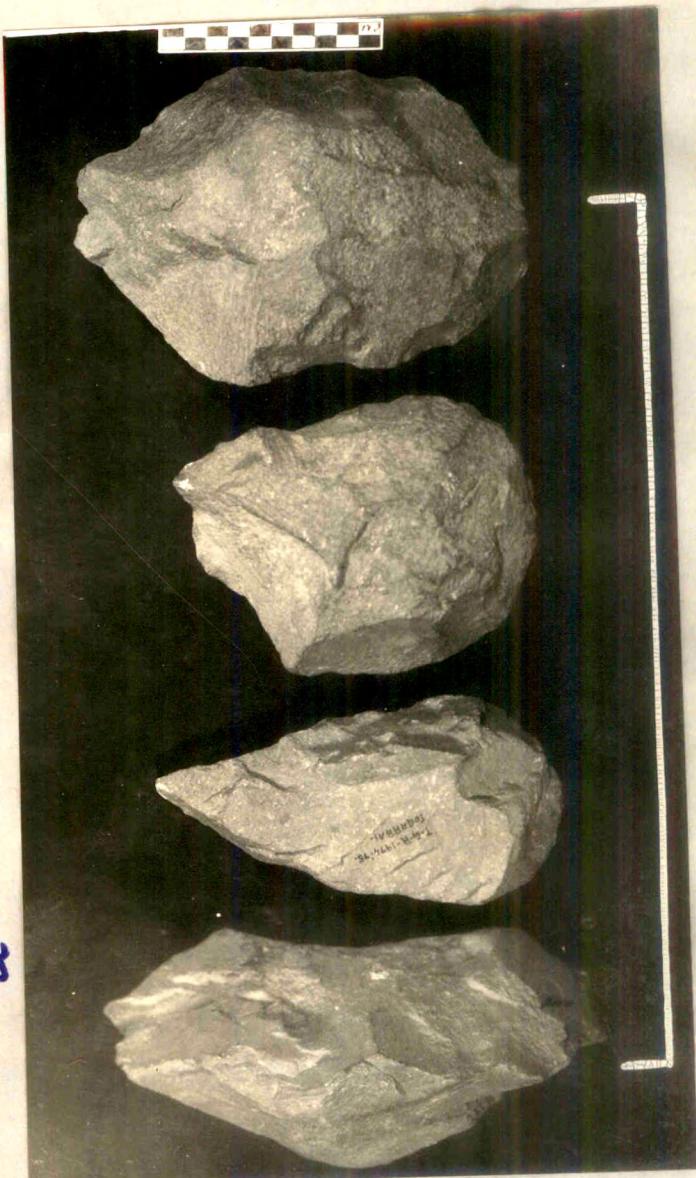
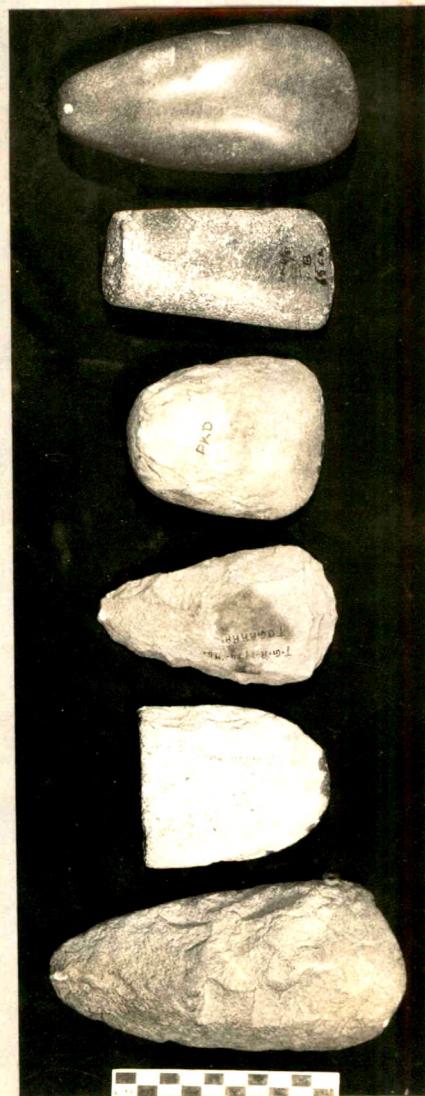
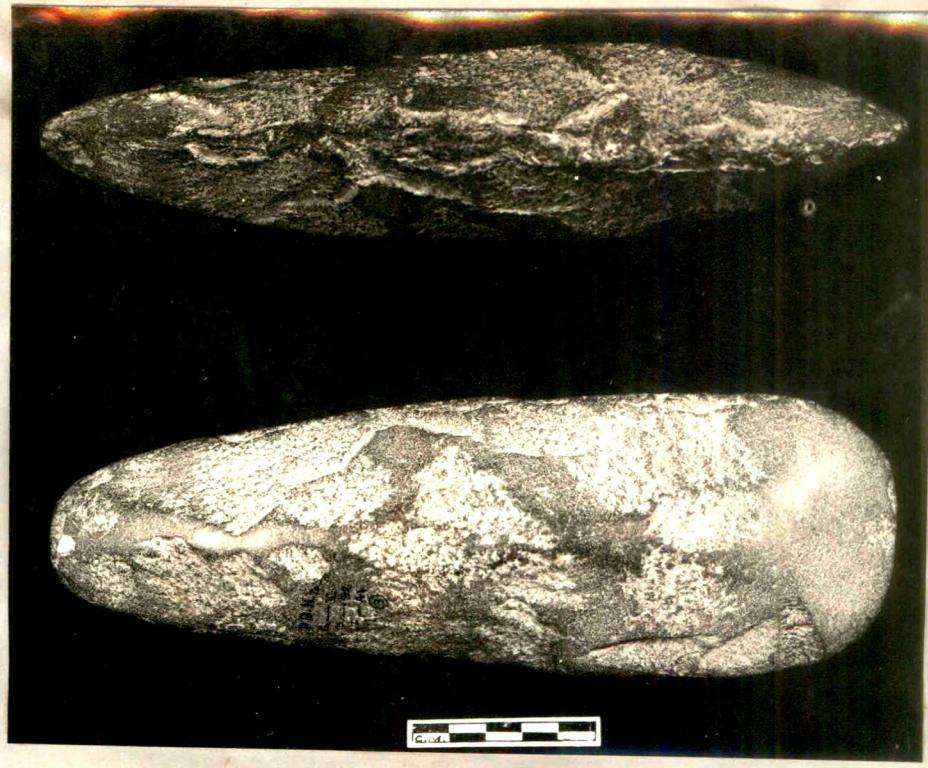


Plate - 2



b



c



Plate-3

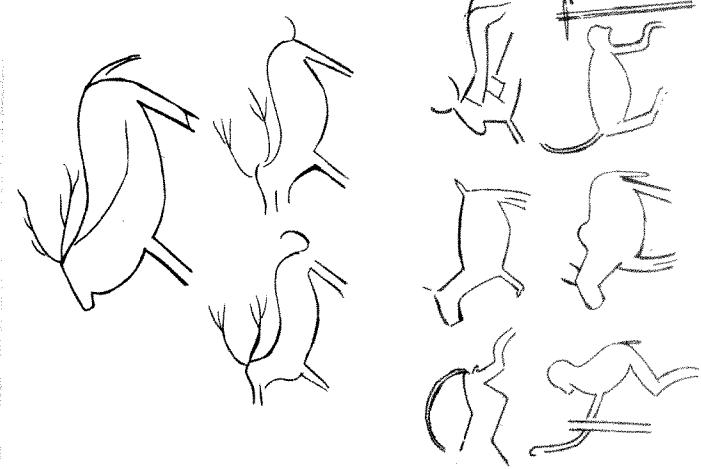
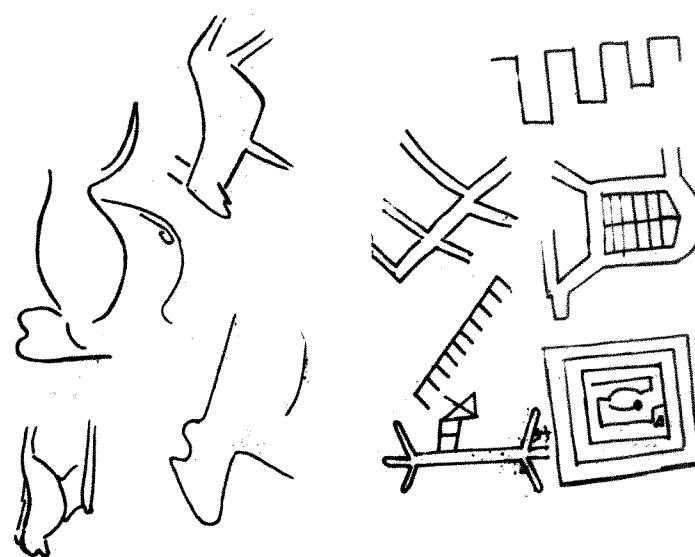
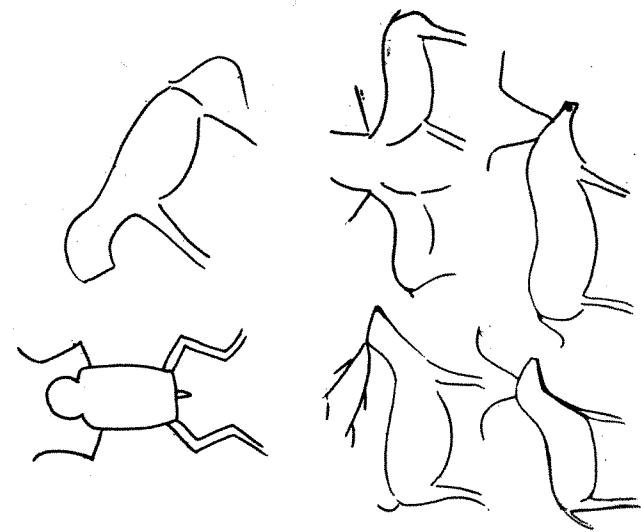


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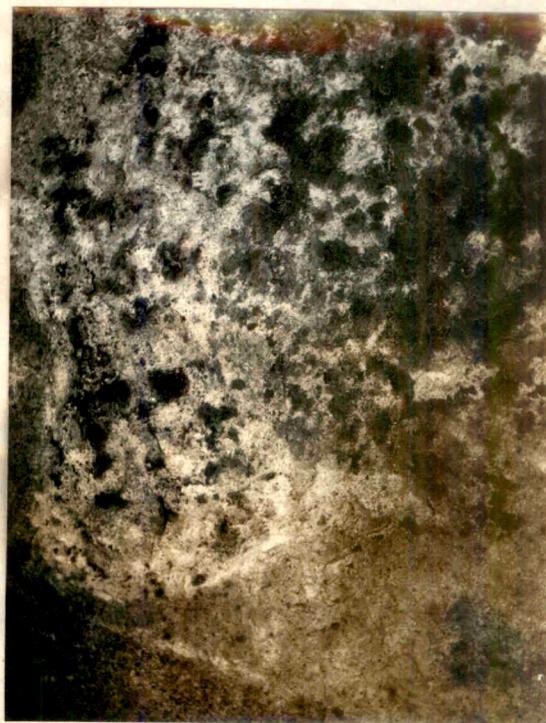
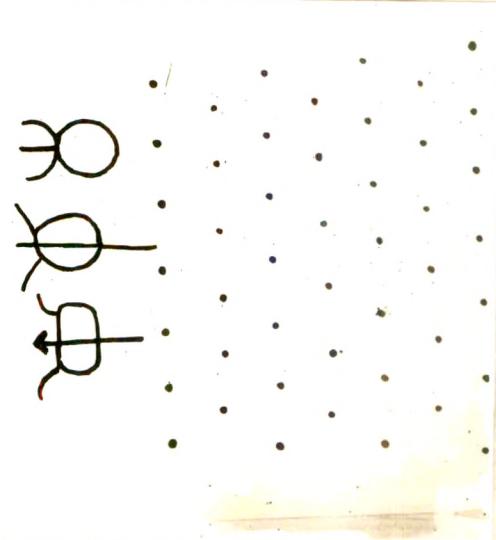
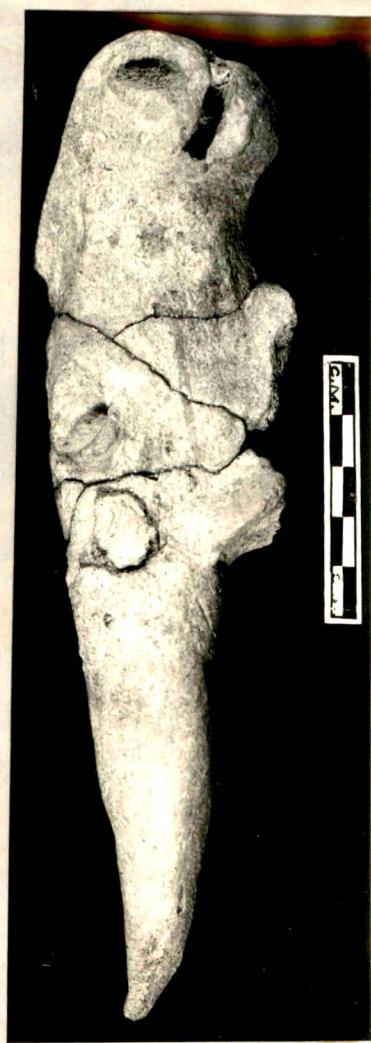
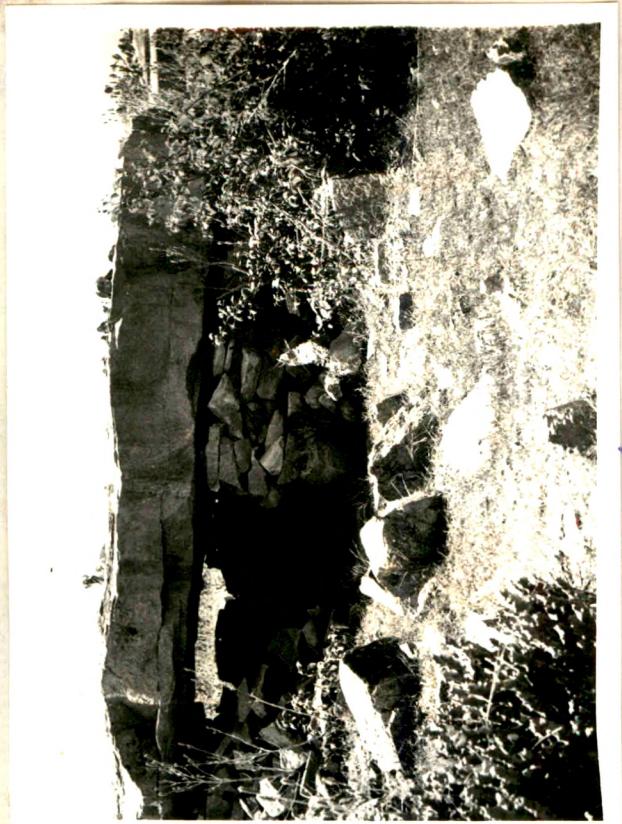


Plate - 5



a



b



c

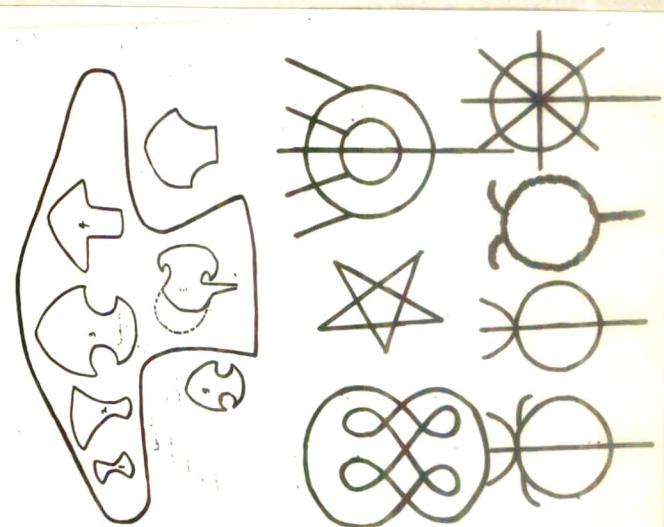


Plate - 6



a



b



c



Plate - 7

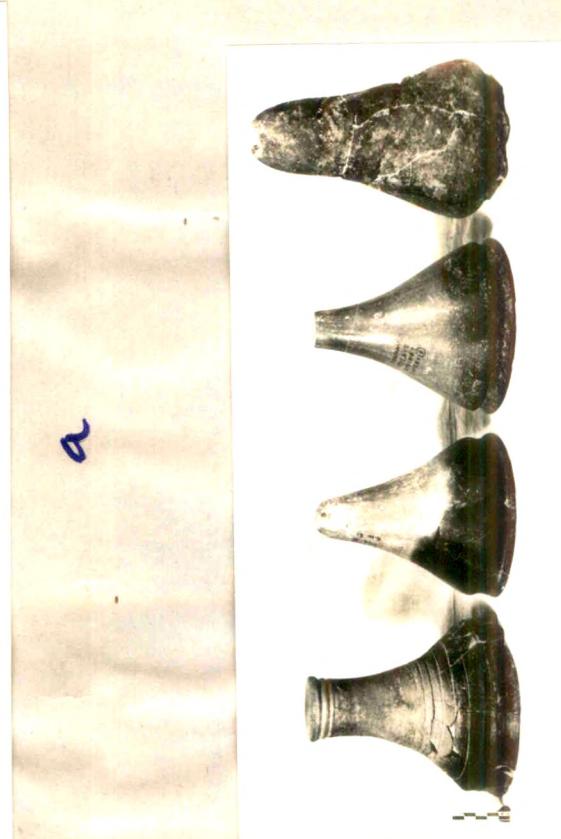
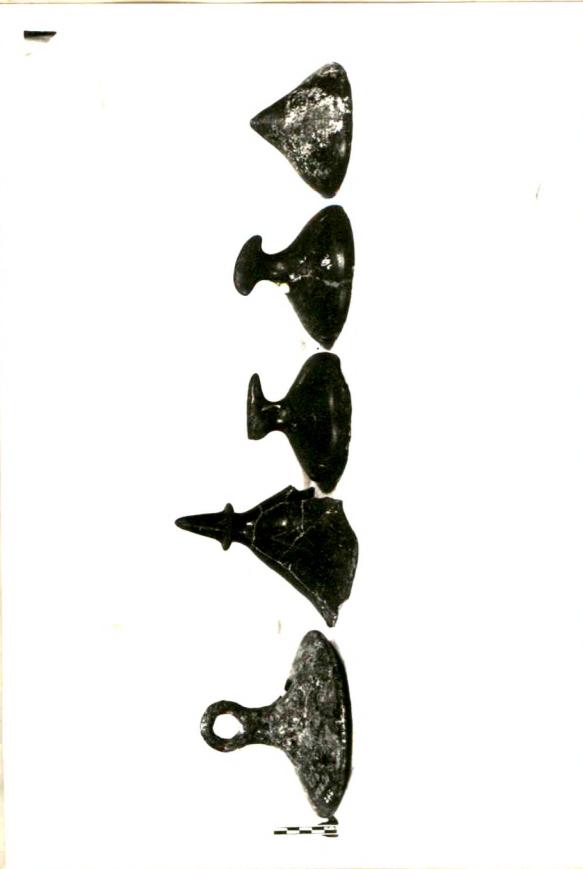
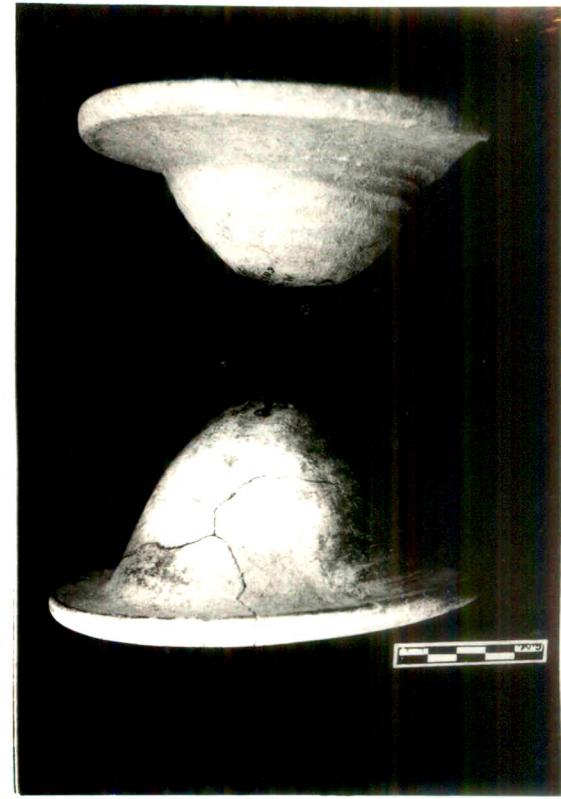
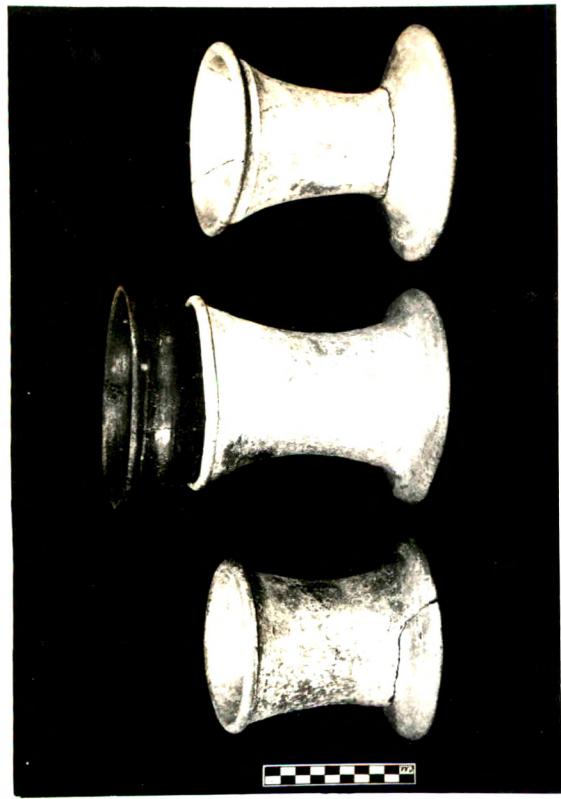


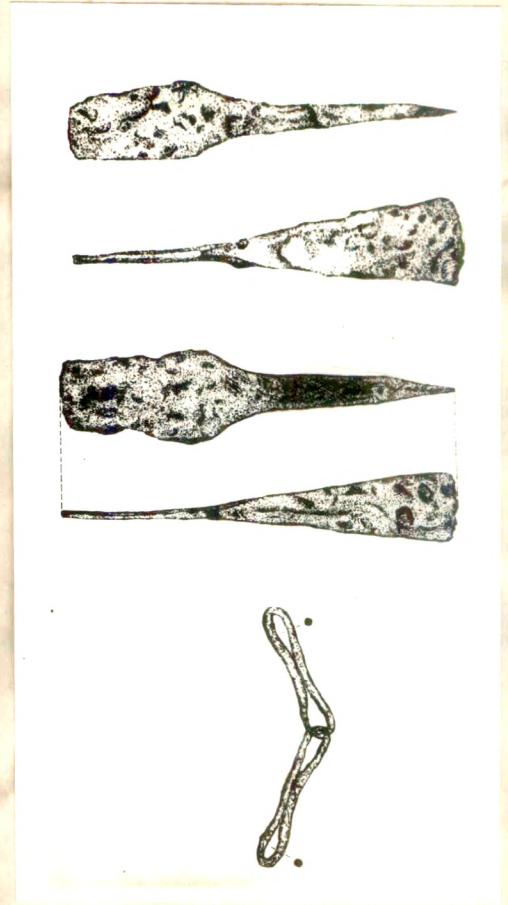
Plate - 6



b



d



c

Plate- 9

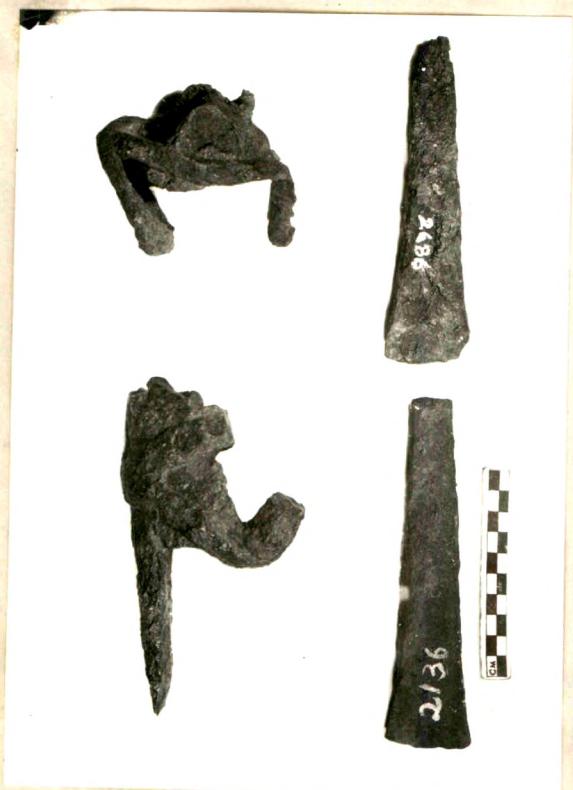
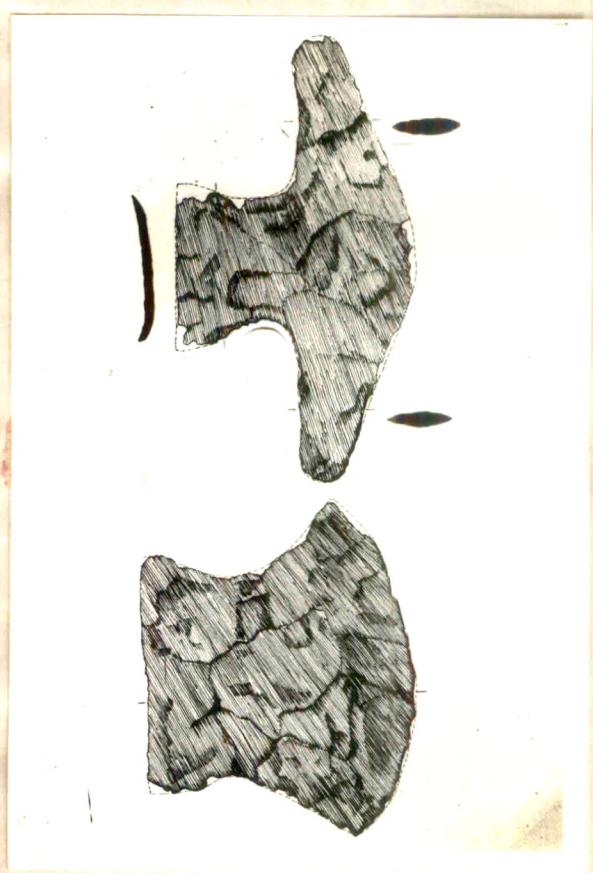
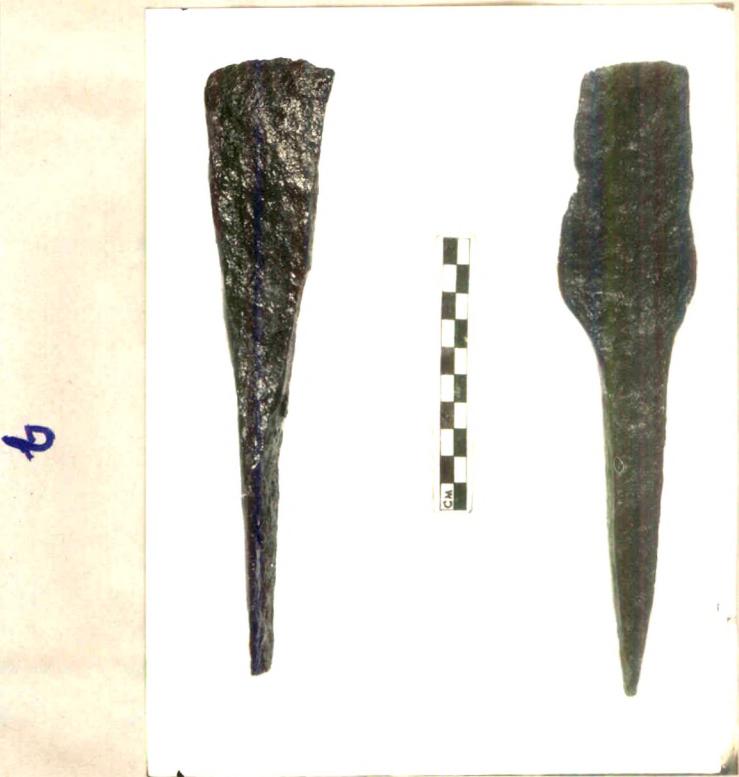
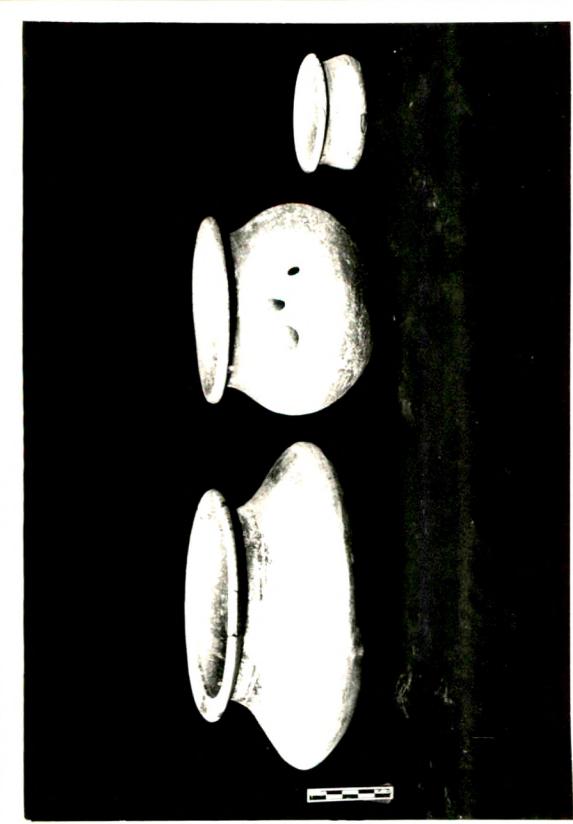
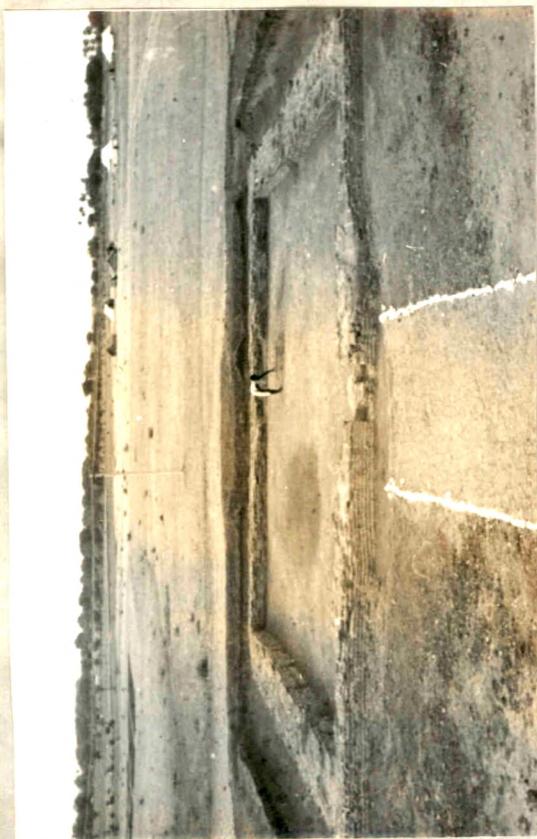


Plate - 10



b



c



a

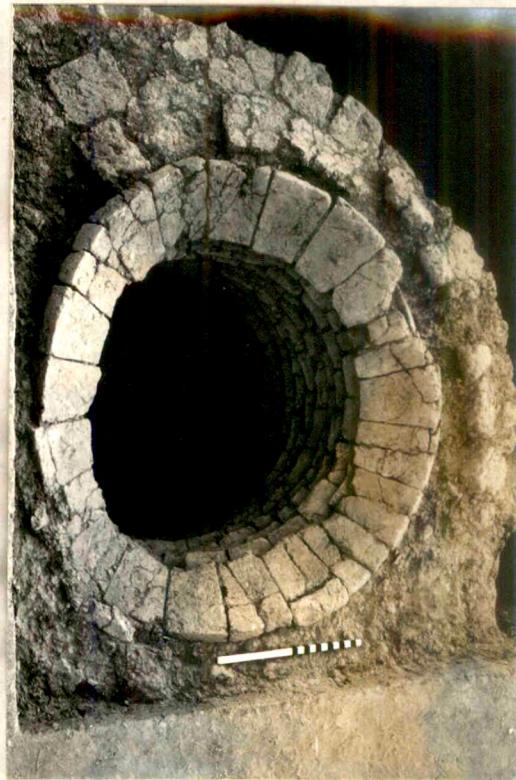
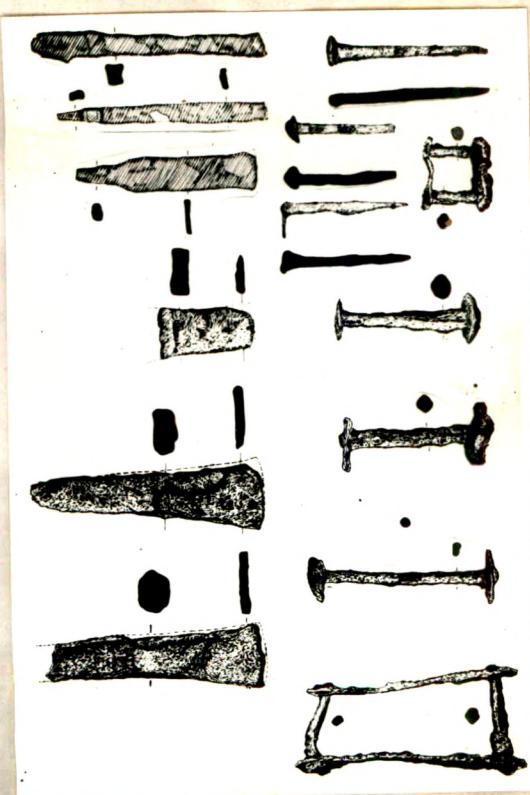


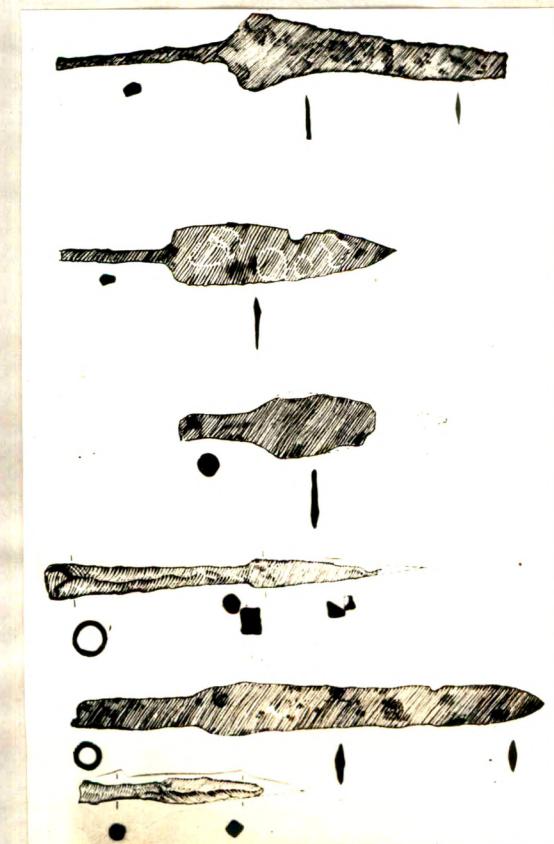
Plate - II



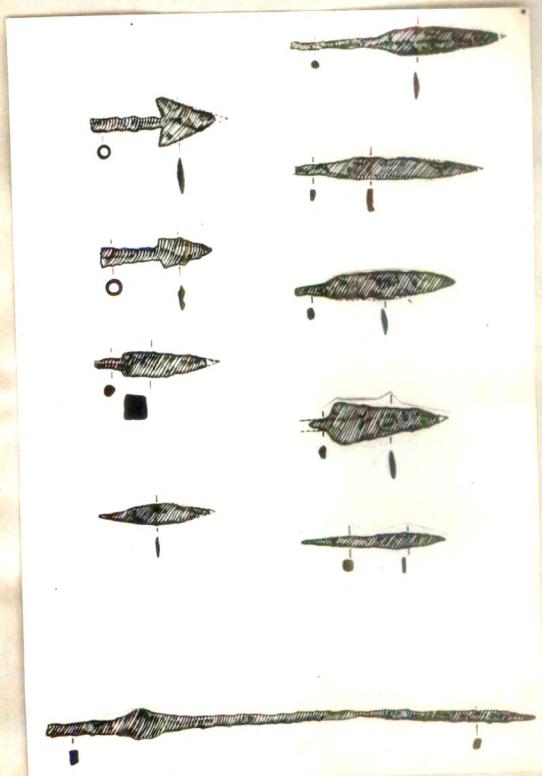
6



d



8



c

Plate - 12



Plate - 13

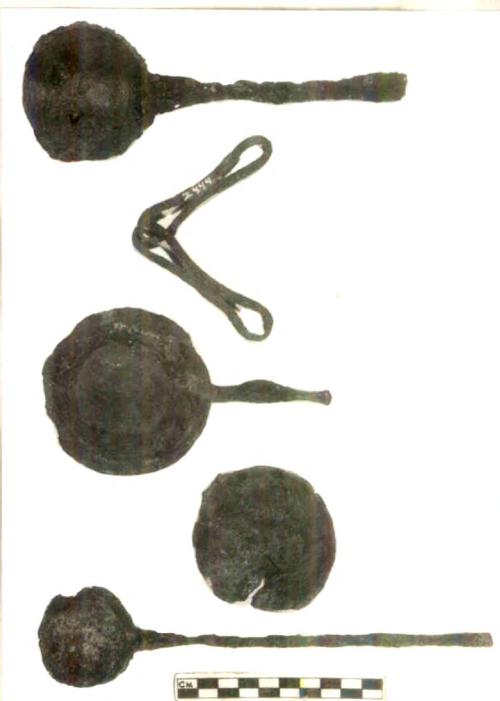
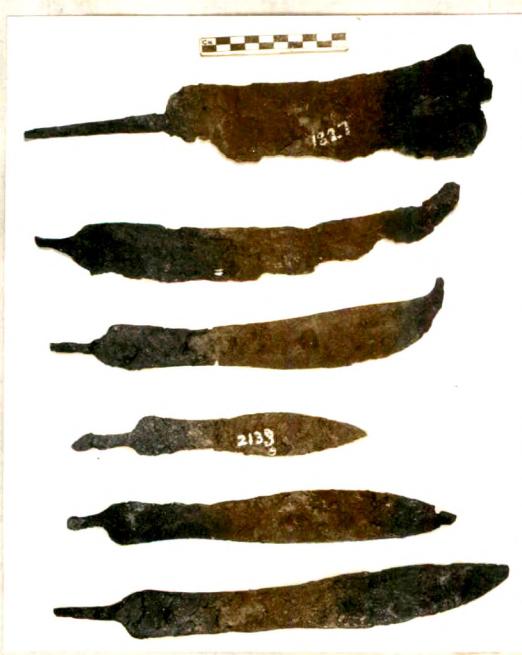
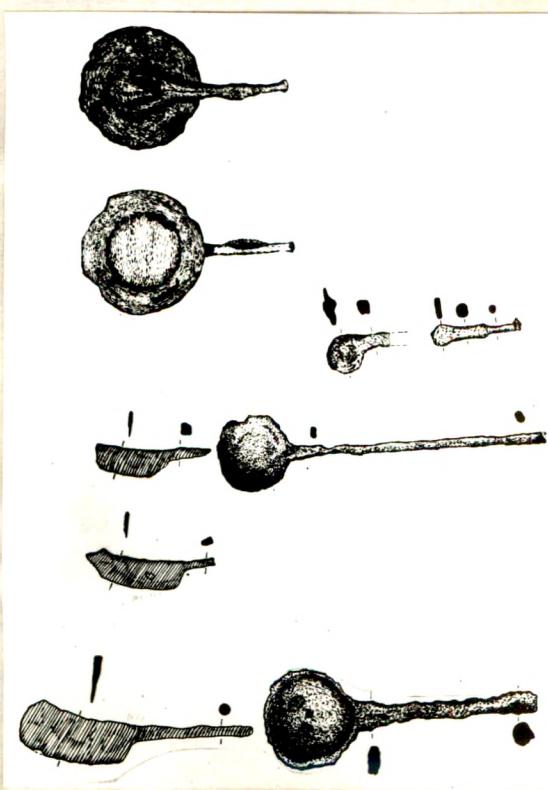
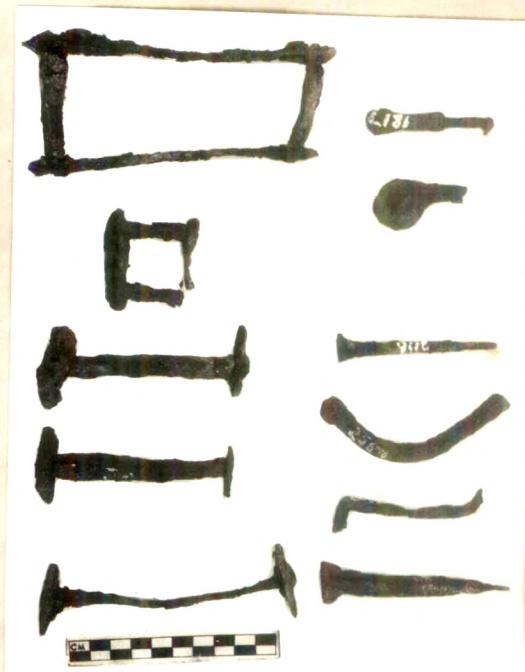


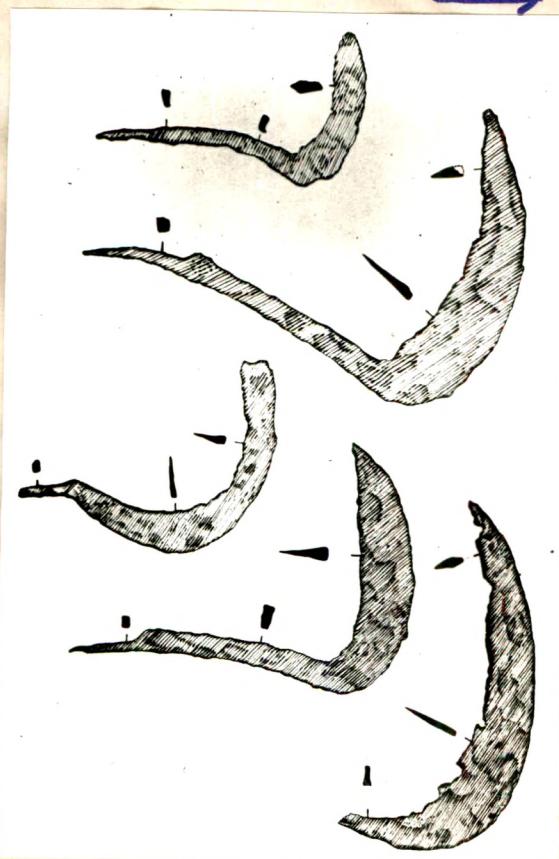
Plate 14



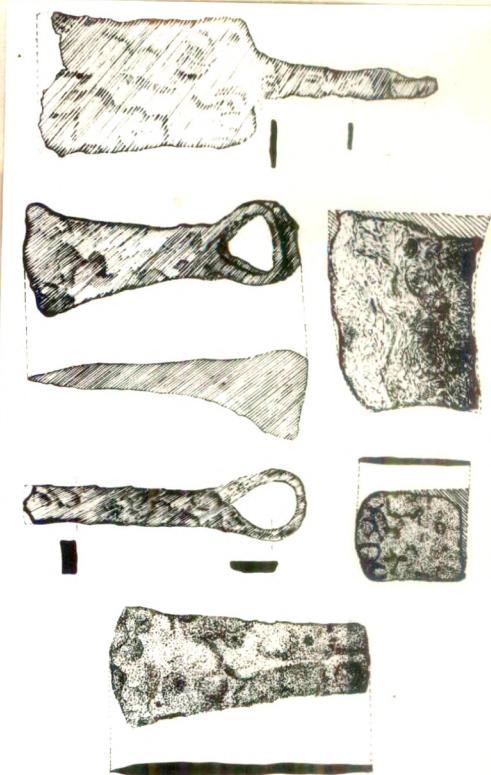
b



d



a



c

Plate .15



C



B



A

Plate - 16

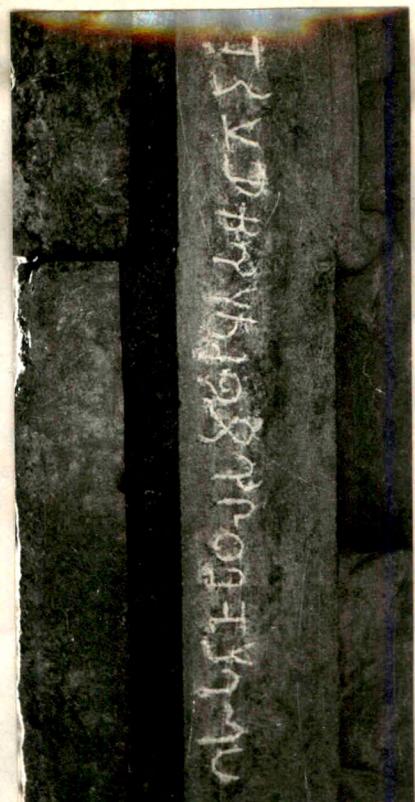


Plate - 17



Plate - 18



Plate. 19

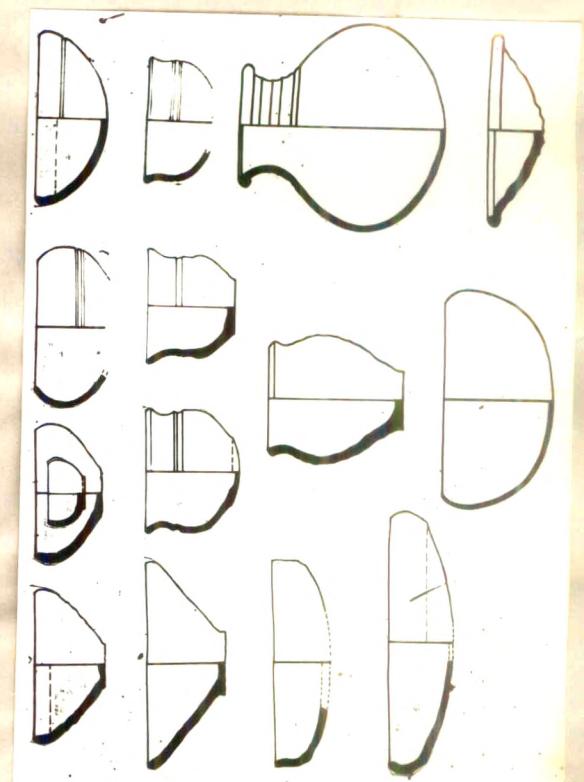
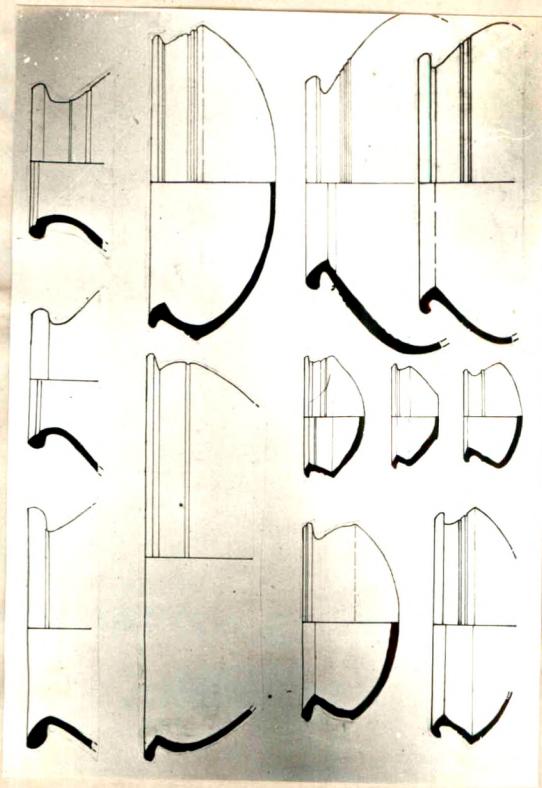
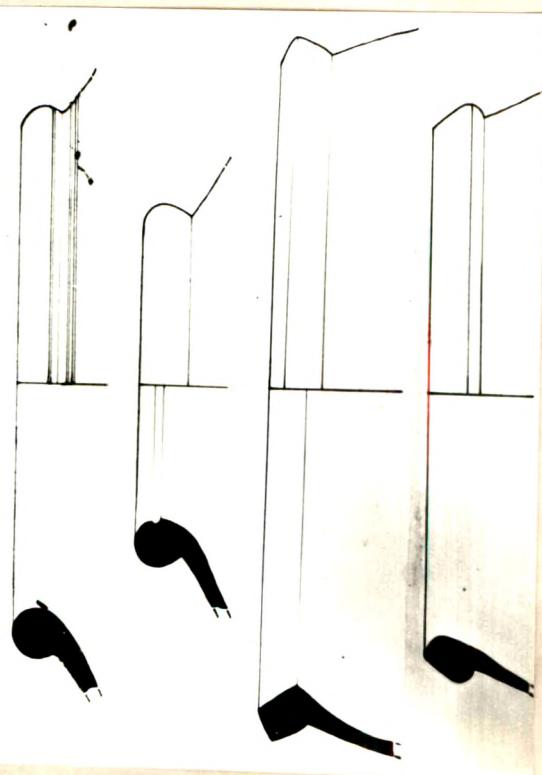


Plate - 20

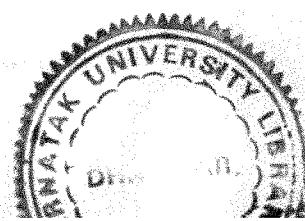
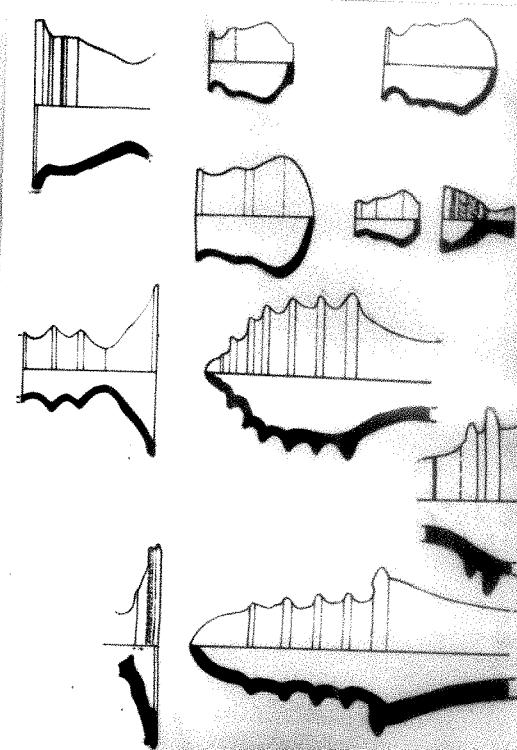
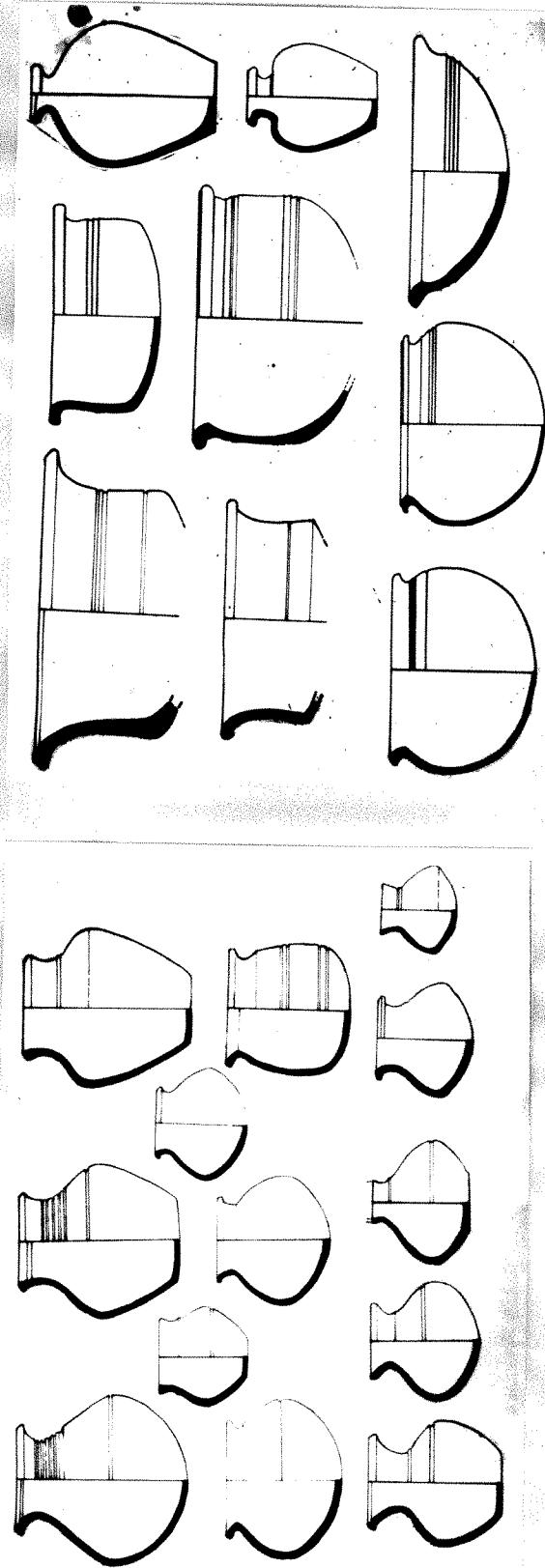
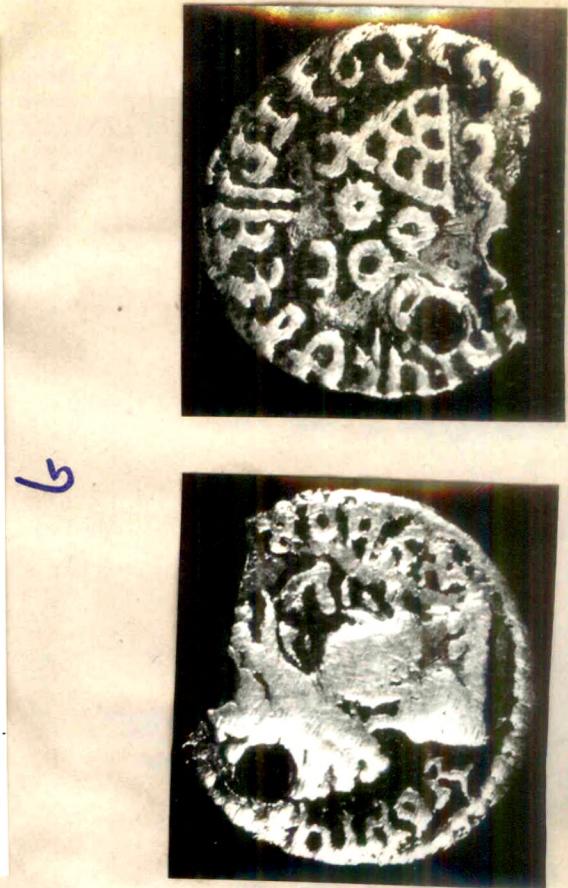
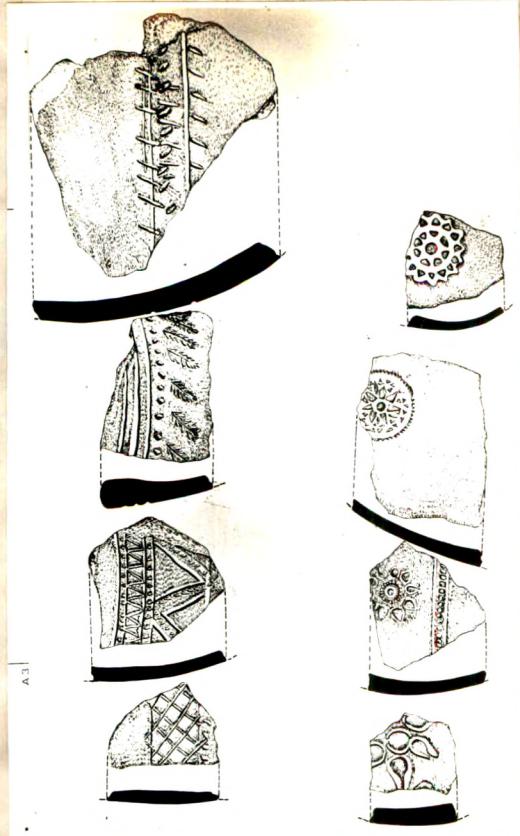
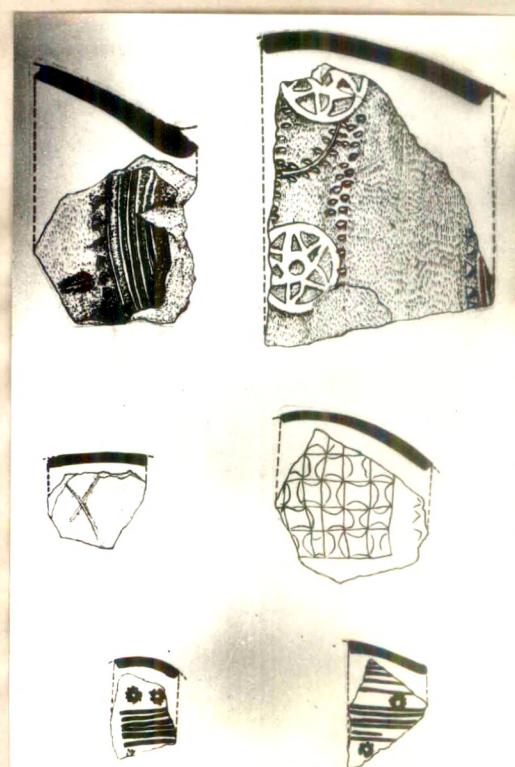
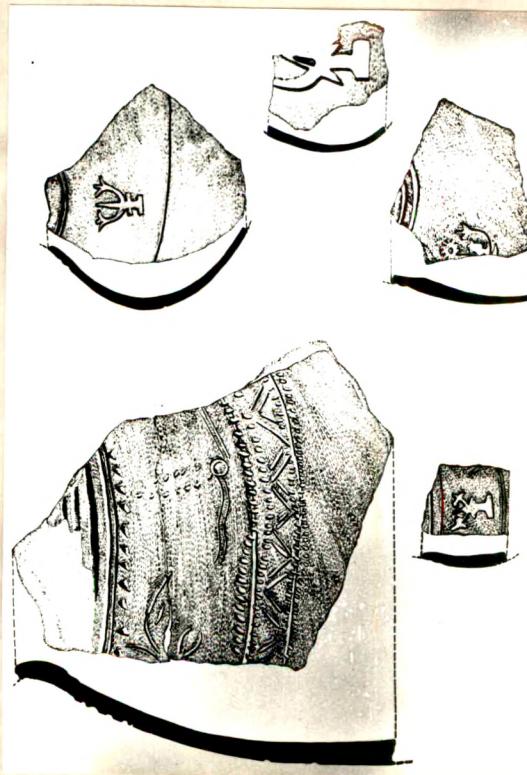


Plate - 21



B



c



Plate - 22

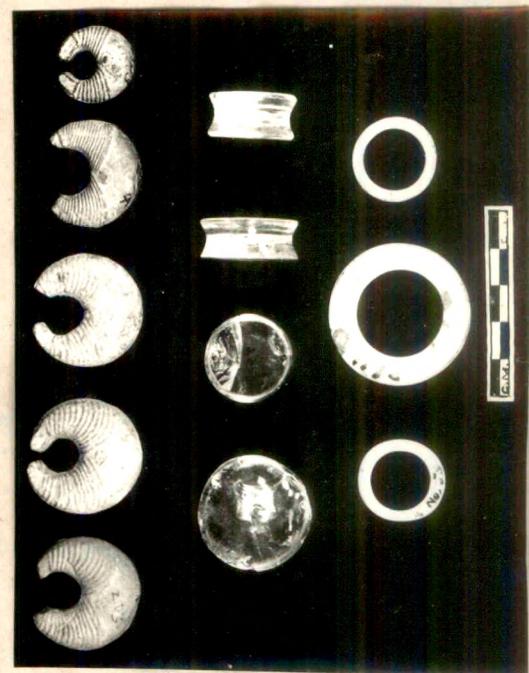
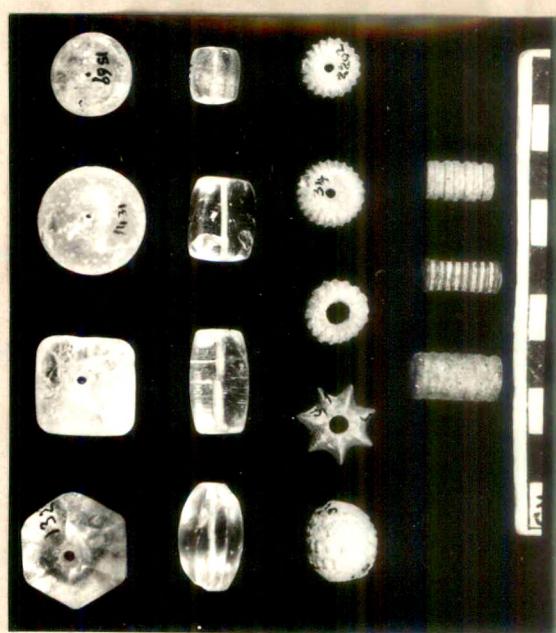


Plate - 23



6



4



2



c

Plate-2A

